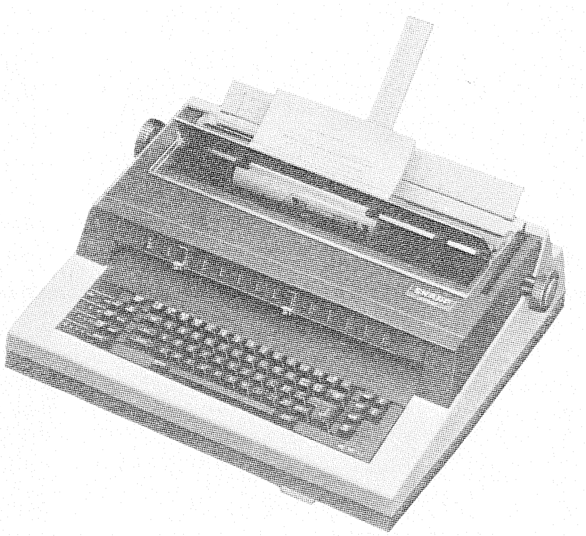
ZX400 / 500

SHARP SERVICE MANUAL

Code: 00ZM091ETSM1A



ELECTRONIC TYPEWRITERS

No. 1

MODEL ZX-400/ZX-500

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II. ELECTRONIC BOARD DESCRIPTIONS, REMOVAL AND REPLACEMENT

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SHARP CORPORATION

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INTRODUCTION

This service manual is designed to assist the service technician in the repair of the ZX series typewriters. It contains the information necessary to repair the mechanical assemblies as well as information for voltage checks and circuit board removal. For circuit descriptions, please refer to the separately available Electronics repair manual. (Manual No.: 00ZM092ETSM2A) For board repairs, please refer to the Sharp Policies and procedures manual.

This service manual No.1 contains four sections:

Section 1	Mechanical Assemblies descriptions, removal, disassembly and assembly.
Section 2	Electronic board descriptions, removal and replacement.
Section 3	Adjustments
Section 4	Parts Guide

PRECAUTIONS

1. During disassembly, always be sure the unit is unplugged.
2. Never remove or insert a circuit board with the power on.
3. When removing a connector, firmly grasp the connector itself and then pull. Pulling on the wire will damage it.
4. The wire rope (carrier drawband) has a plastic coating and scratches easily. Use caution when replacing.
5. When repairing a mechanism, be sure to lubricate the specified parts.
6. When removing or working with the logic boards, always protect them from static electricity. Do not permit the batteries to short circuit.

TOOLS

When maintaining the ZX-400, 500 the following tools are required in addition to regular hand tools.

No.	Parts Code	Name	Quantity
1	UKOGM1068CSZZ	Loupe 15x	1
2	UKOGM1069CSZZ	Tension gauge 500g	1
3	UKOGM1070CSZZ	3mm double-headed-end wrench	1
4	UKOGM1071CSZZ	5mm double-headed-end wrench	1
5	UKOGM1072CSZZ	10mm double-headed-end wrench	1
6	UKOGM1074CSZZ	14mm thickness guage	1
7	UKOGM0075CSZZ	0.1mm~5mm thickness gauge	1
8	UKOGM1073CSZZ	Spring hook	1
9	00PCB-IG102A/	Key-top removing tool	1
10	00PCB-1G102//	Key-switch removing tool	1
11	UKOGM1075CSZZ	Parallel gauge	1
12	UKOGM1076CSZZ	Draw band holder	1
13	DUNT-5070BCZZ	Service checker 1	1
14	DUNT-5071BCZZ	Service checker 2	1

The ZX-400, 500 consists of 6 major assemblies;

1. Housing
   - Upper
   - Lower
2. Power Supply
   - Primary
   - Secondary
3. Printer — Carrier assembly
   - Platen assembly
   - Paper feed assembly
   - Carrier motor assembly
   - Printer main frame
4. Keyboard
   - Keys
   - Decoding
5. Main PWB
6. Display board * ZX-500 only

SPECIFICATIONS

	ZX-500	ZX-400
PRINTER		
Print speed	20 cps	20 cps
Printwheel	112 characters, removable cassette	
Print pitch	10, 12, 15, PS	
PAPER WIDTH	432 mm (17 inches)	
TYPING WIDTH	335 mm (13.2 inches)	
RIBBON SYSTEM	Correctable Carbon Film; 80,000 char. (approx.) Multi Strike Carbon Film; 300,000 char. (approx.) Multi Strike, Fabric; 500,000 char. (approx.)	
CORRECTION TAPE	Lift-off for Correctable Film; 2,000 char. (approx.) Cover-up for Fablic and Multi Strike Ribbon; 2,000 char. (approx.)	
KEYBOARD		
Alphanumeric Keys	47 or 48	
Printable Characters	112	
Repeating Keys	Back Space, Space Bar, Index, Reserse Index, Forward, Carrier Return, Correction Plus "Repeat Key" for all other characters	Back Space, Space Bar, Index, Reverse Index, Carrier Return, Correction Plus "Repeat Key" for all other characters
FUNCTION KEYS	29 Keys Margin Release Left Margin Right Margin Tab Set Tab Clear Tab Dec Tab Set Half Space Repeat Backspace Correction Backspace Indent Express Relocate Index Reverse Index Forward Insert Delete Memory Page Format Column Layout Centering Keyboard I or II Shift and Shift Lock Space Carrier Return Code Key Operation [Continuous Underline Bold Underline, Bold Vertical Tab Set, Page Insert Set, Hot Zone Set, Beginning of Correction Memory Print, End of Form]	23 Keys Margin Release Left Margin Right Margin Tab Set Tab Clear Tab Dec Tab Set Half Space Repeat Backspace Correction Backspace Indent Express Relocate Index Reverse Index Centering Keyboard I or II Carrier Return Shift and Shift Lock Space Code Key Operation [Continuous Underline Bold Underline Bold Vertical Tab Set Page Insert Set Hot Zone Set Beginning of Correction]
MEMORY		
Automatic Correction Zone	400 characters or 6 lines	200 characters or 3 lines
Line Format Memory	3 total – one each for 10, 12, 15 pitch	
Page Format/Glossary Memory	Up to 10 page formats/Up to 26 Glossaries, 1,024 byte capacity total	—
Column Layout	1 Line	—
DISPLAY		
Type	Blue Fluorescent Display with Red Cursor	—
Capacity	32 Characters	—
Display Element Format	5 x 12 Dots + Red Cursor Row	—
POWER REQUIREMENTS		
Power Comsuption	Approx. 85 watts	Approx. 75 watts
Operating Temperature	5° ~ 35°C (41° ~ 95°F)	
Storage Temperature	–25° ~ +60°C (–13° ~ 140°F)	
Ambient Humidity	10 ~ 85%	
DIMENTIONS	564mm wide, 195mm high, 490m deep 22.2" wide, 7.7" high, 19.3" deep	
WEIGHT	20 Kg (44.1 lbs) (approx.)	18.5 Kg (40.8 lbs) (approx.)

1. HOUSING ASSEMBLY

1-1. UPPER HOUSING REMOVAL

(Fig. A-1)

a) Make certain the paper end indicator (E) and the paper support (F) are down in the secured, lowered position.
b) Raise the ribbon access cover (I), (make certain the antireflector (glare shield) is down)
c) Remove the platen knobs (H) using a 2mm allen wrench.
d) Stand the machine on the rear of the unit and remove 3 phillips head screws (A) located on the bottom of the machine. 1 in each lower corner, one top center.
e) Lower machine and remove 2 phillips head screws (C) located inside the ribbon access cover in the lower corners.

Installation is done in the reverse order.

NOTE: When installing the platen knobs, make certain the platen knob with the set screws in the slots is installed on the left hand side of the platen. The right hand knob has the set screws is round holes.

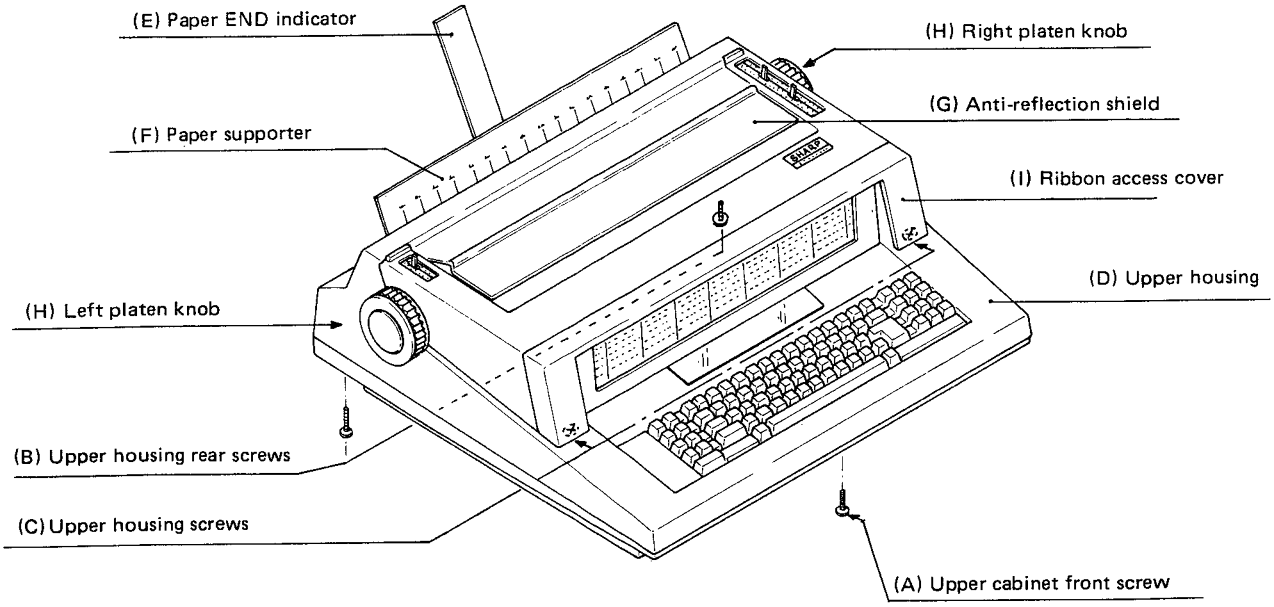

(E) Paper END indicator
(H) Right platen knob
(G) Anti-reflection shield
(F) Paper supporter
(I) Ribbon access cover
(D) Upper housing
(H) Left platen knob
(B) Upper housing rear screws
(C) Upper housing screws
(A) Upper cabinet front screw
SHARP

Fig. A-1

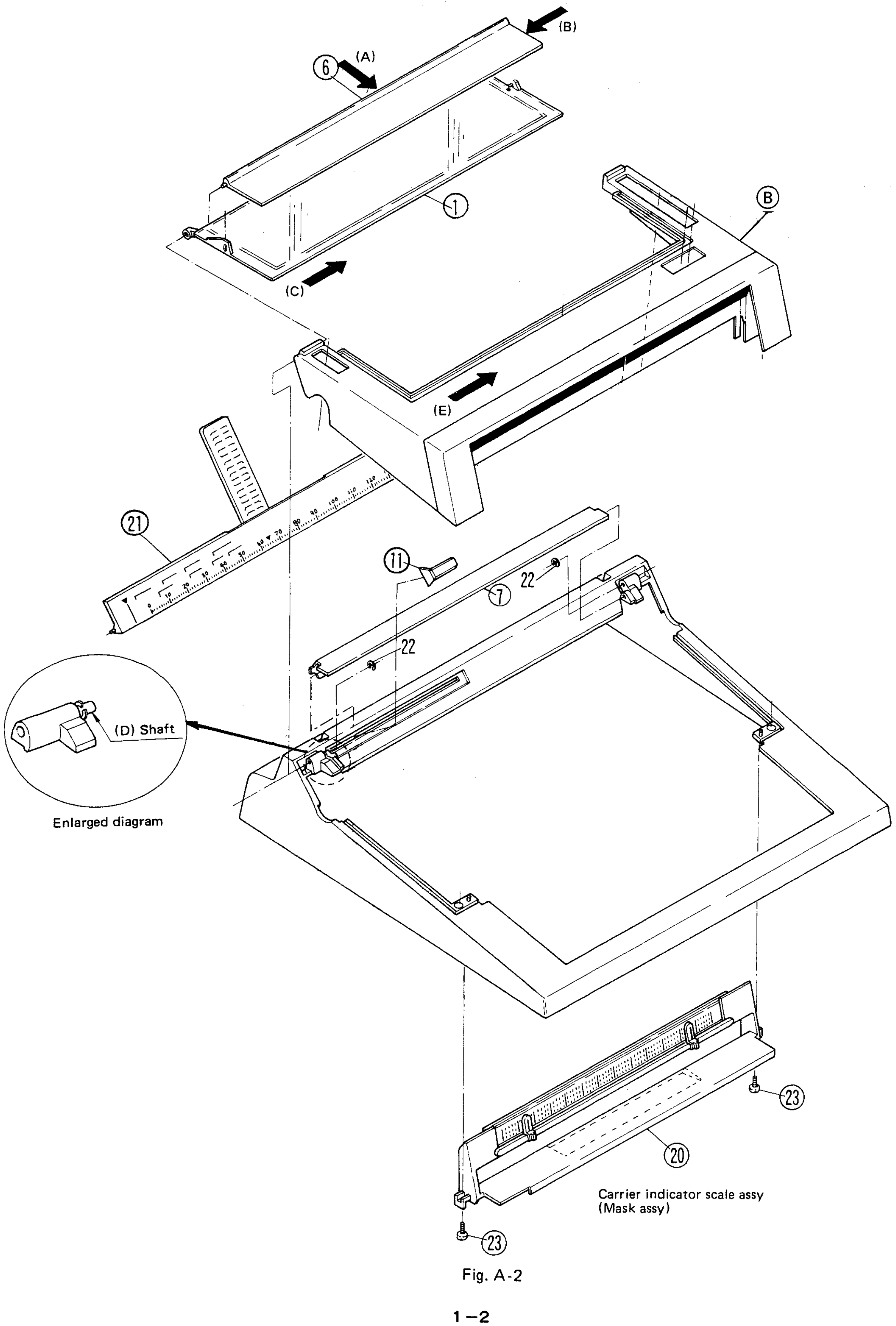

(B)
⑥
(A)
①
Ⓑ
(C)
(E)
㉑
⑪
⑦
22
22
(D) Shaft
Enlarged diagram
㉓
⑳
Carrier indicator scale assy
(Mask assy)
㉓

Fig. A-2

1-2. UPPER HOUSING DISASSEMBLY

(Fig. A-2)

To disassemble the upper housing, follow the removal procedure for the various units.

ANTI-REFLECTOR (GLARE-SHIELD) REMOVAL (6)

a) Lift up the glare shield (6) and push in the direction of arrow (B). Remove the shield from the holes in the acoustic cover (1).

ACOUSTIC COVER (SOUND SHIELD) REMOVAL (1)

a) Push the acoustic cover in the direction of arrow (C) and remove the cover from the shafts of the ribbon access cover.

1-3. RIBBON ACCESS COVER REMOVAL (B)

(Refer to Fig. A-2)

a) Open the access cover and pull pivot shaft (D) on the left side of the cabinet to the right with a pair of pliers. Remove the left side of the cover and slide it to the right to remove it from the left pivot shaft. When removing the right side of the cover, be sure not to lose the spring which is in the hole on the right side of the cover.

1-4. PAPER SUPPORT PLATE REMOVAL (21)

a) To remove the paper plate grasp it in the center and pull to form an arch and free it from the holes of the upper housing.

1-5. CARRIER INDICATOR SCALE (MASK ASSY) (20) REMOVAL

a) Turn over the upper housing, remove 2 screws (23) securing the scale and remove it.

1-6. ERASURE TABLE REMOVAL (7)

a) With the housing turned over, push the tabs on the sides of the table (7) which hook to the upper housing and remove it.

NOTE: Reassemble in reverse order.

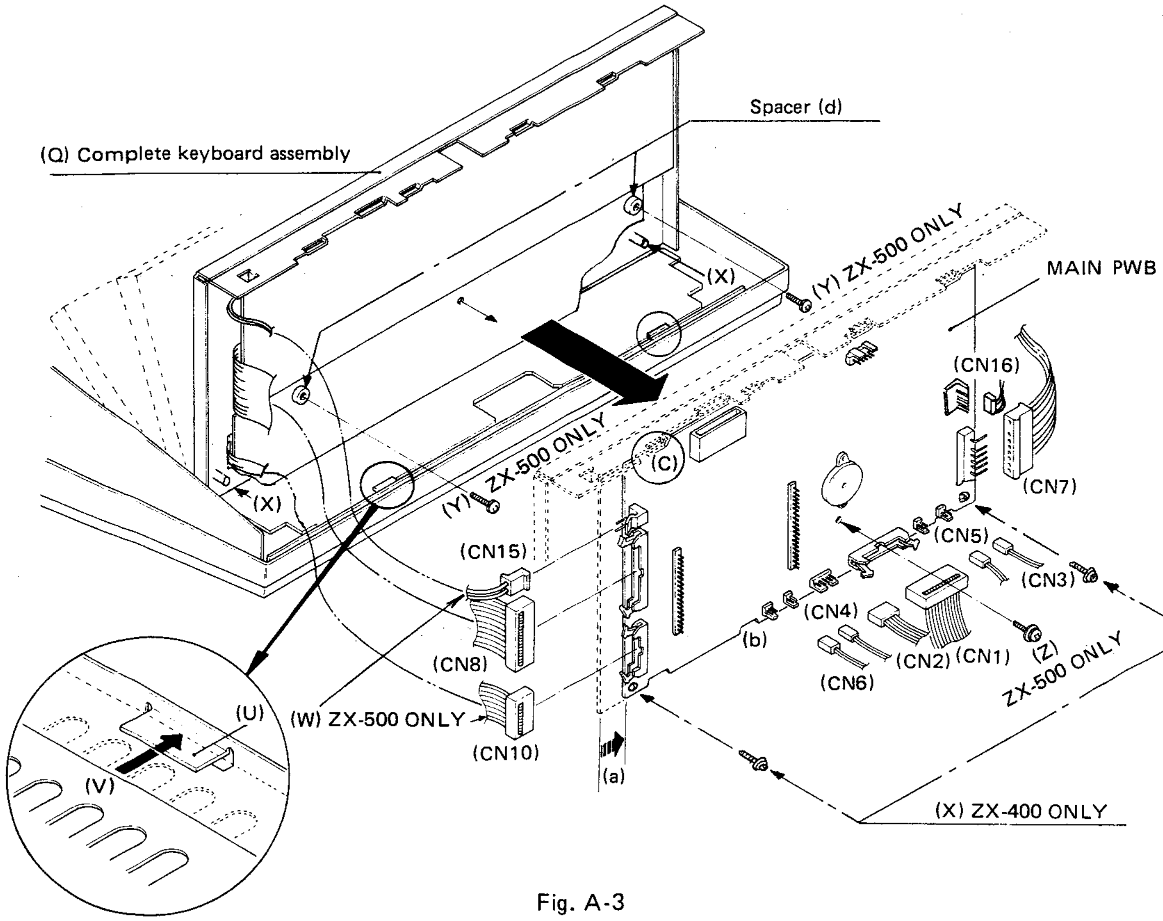

Spacer (d)
(Q) Complete keyboard assembly
(X)
(Y) ZX-500 ONLY
MAIN PWB
(CN16)
(CN7)
(C)
(Y) ZX-500 ONLY
(X)
(CN15)
(CN5)
(CN3)
(CN4)
(b)
(CN8)
(CN2)
(CN1)
(Z)
ZX-500 ONLY
(CN6)
(U)
(W) ZX-500 ONLY
(CN10)
(V)
(a)
(X) ZX-400 ONLY

Fig. A-3

2. KEYBOARD ASSEMBLY REMOVAL

(Refer to fig. A-3)

a) Lift up the complete keyboard assembly (Q) and stand it on the frame along the back of the unit.

b) Remove connectors (CN1) thru (CN8), CN10, CN15 and CN16. (Connectors CN10 and CN15 are used for ZX-500 only.)

c) Refer to fig. A-4
   Remove ground wire (J7)

d) Remove keyboard assembly.

Replacement is done in the reverse order.

3. REMOVAL PRINTER MAIN FRAM FRAME BOTTOM HOUSING

Refer to fig. A-4 for step A.

a) Remove ground wires (J1) thru (J4).

b) Grasp the frame on both sides and lift the unit up and out of the housing.

CAUTION: When lifting unit be careful to clear the on/off switch, or the cover of the on/off switch may break.

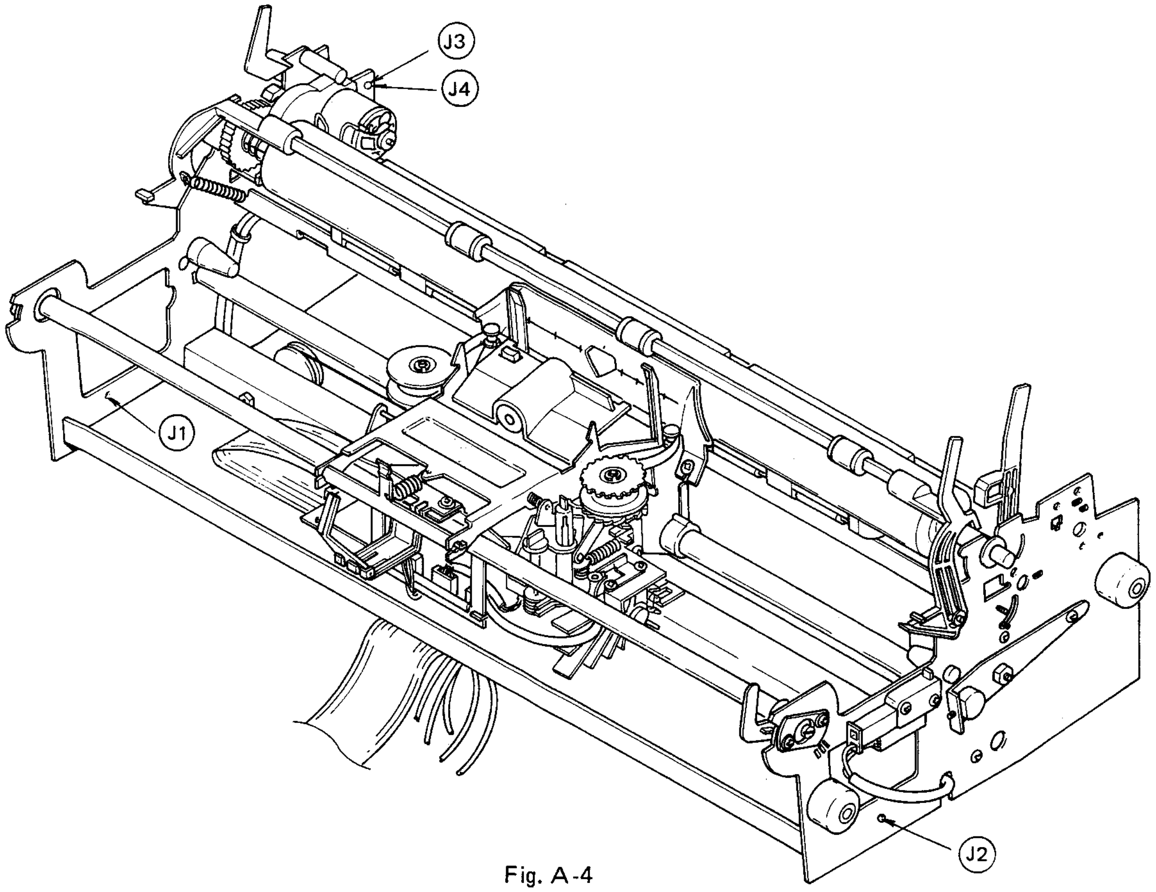


Fig. A-4

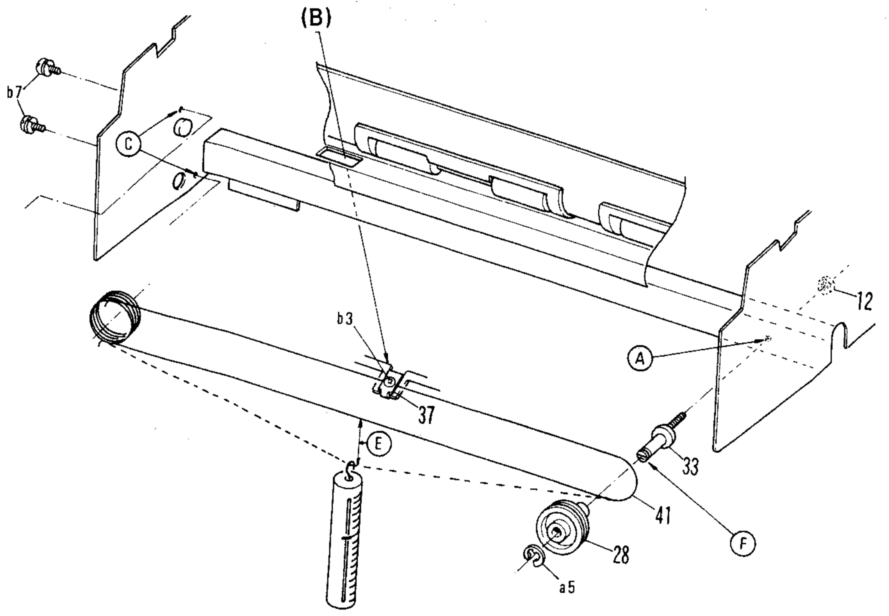


Fig. A-5

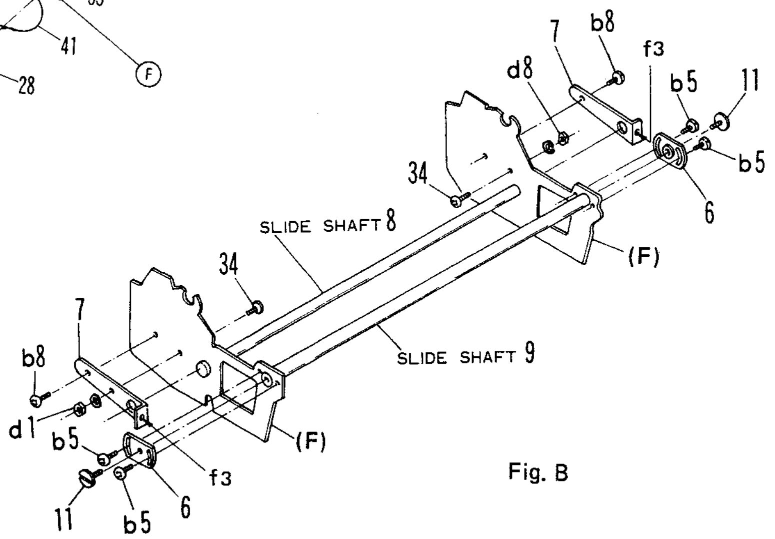


Fig. B

4. CARRIER ASSEMBLY

4-1. CARRIER REMOVAL

a) Refer to Fig. A-5. Remove screw b3 which fastens the carrier to the wire rope (drawband). To do this, position the carrier between the first and second paper feed roller holder (B) and insert a screwdriver between them.
b) Refer to Fig. B and remove 2 shaft retaining screws (11).
c) Remove 2 allen screws (f3) securing slide shaft (8) with a 2mm allen wrench.
d) Pull out the slide shaft (8) from either side.
e) By gently pressing the frame (F) out, the carrier unit can be removed with slide shaft (9).

Shaft (8) is adjusted by 2 eccentric plates (6) which are on the machine frame. Eccentric plate (6) can be removed by removing the 2 retaining screws (b5) which fasten the plates to the main frame.
Shaft (9) adjusting plates (7) can be removed by removing screw (b8) and eccentric (34) which is retained by nut (d1).
These adjustments are explained in the adjustments section.

4-2. CARRIER DISASSEMBLY

4-2-1. REMOVING THE RIBBON CARTRIDGE HOLDER

The ribbon cartridge holder is held to the carrier by 2 pivot points near the rear of the holder. It is connected to the ribbon lift and feed mechanism be a cam follower. As the cam on the ribbon lift and feed assembly turns, the cam follower, which is riding in the grooves of the cam, causes the ribbon holder to lift. There are 3 basic positions of the cam; 0 degrees, 90 degrees, and 180 degrees. When the ribbon lift motor located on the ribbon lift and feed assembly is signalled by the main pwb, it causes the cam to turn to the 90° position. After a character is typed the cam is brought home to the 0° position. When continuous typing is performed, the motor causes the cam to oscillate between the 90° and 180° position. This causes the ribbon to remain in a continuously lifted position. When the correction key is depressed, the motor turns the cam in the opposite direction to the 150° point. This causes the correction tape to lift and line up with the typeface to perform the correction.

4-2-2. RIBBON CARTRIDGE HOLDER DISASSEMBLY

Refer to Fig. C-1

a) Remove 2 screws (b9) fastening the cam follower (49) to the ribbon holder.

b) Remove the screw (b3) retaining the cartridge holder support plate (47).

c) The cartridge holder can now be removed by sliding it to the right freeing the pivot shaft.

d) Lift up on the cartridge holder in the direction of arrow A.

e) By removing "E" clip a2 the ribbon holder and the holder support mechanism can be separated.

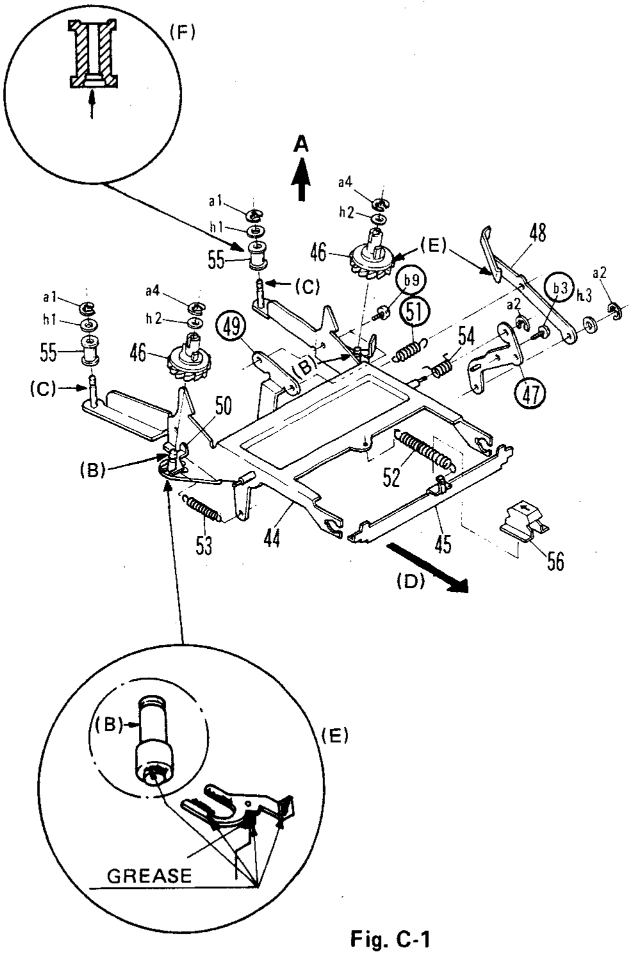

(F)
A
a1
h1
55
a4
h2
46
(E)
48
a2
b3
h3
a2
(C)
b9
(51)
54
㊼
a1
h1
55
a4
h2
46
㊾
(B)
(C)
50
(B)
52
53
44
45
56
(D)
(B)
(E)
GREASE

Fig. C-1

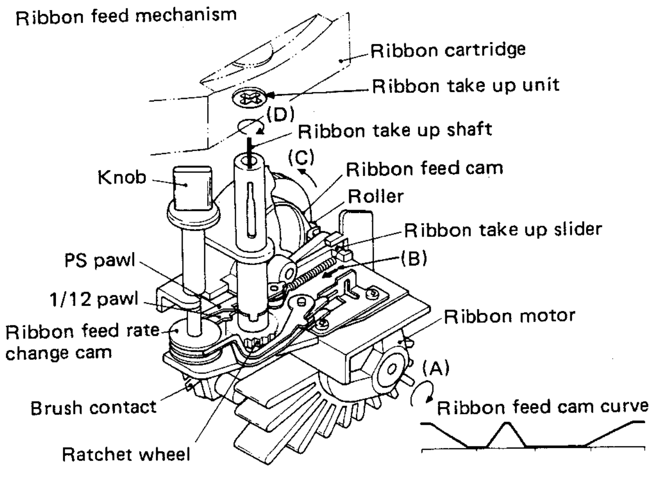

Ribbon feed mechanism
Ribbon cartridge
Ribbon take up unit
(D)
Ribbon take up shaft
(C)
Ribbon feed cam
Roller
Knob
Ribbon take up slider
(B)
PS pawl
1/12 pawl
Ribbon motor
Ribbon feed rate change cam
(A)
Brush contact
Ribbon feed cam curve
Ratchet wheel

Fig. D-1

4-3. RIBBON LIFT AND FEED MECHANISM

Ribbon take-up and feed is done in the following manner;

a) For single character operation:

(Refer to Figures D-1 and D-1A)

With the ribbon lift signal, the ribbon motor rotates from the brush contacts (Fig. D-1A) in the direction of arrow (A) until the 90° signal turns ON. Due to this rotation, the ribbon feed cam rotates 90° in the direction of arrow (C). The roller connected to the ribbon take up slider slides along this cam in the direction of arrow (B). The 1/12 pawl (PS pawl) attached to this slider is engaged with the pawl wheel and remains in the standby state. When the ribbon motor is signalled to bring the ribbon down, the motor rotates from the brush contacts in a direction opposite arrow (A) until the 0° signal turns ON. The ribbon feed cam rotates in a direction opposite arrow (D), the ribbon take up slider returns to home position. The ratchet wheel driven by the pawl rotates in the direction of arrow (D) and the ribbon is advanced.

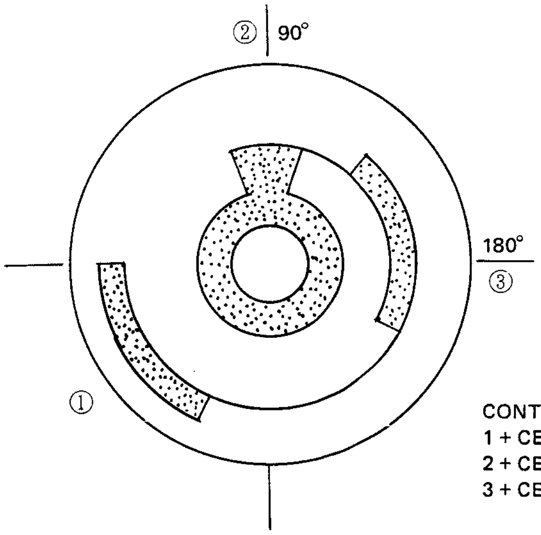


Fig. D-1A

CONTACTS AT:
1 + CENTER = CAM WHEEL HOME
2 + CENTER = 90° (Position A)
3 + CENTER = 180° (Position B)

b) Continuous printing:

(Refer to Fig. D-1)

With the ribbon lift signal, the ribbon motor rotates from the brush contacts in the direction of allow (A) until the 0° signal turns ON. The PS or 1/12 pawl engages the pawl wheel in the same way as described above. Next the ribbon motor rotates from the brush contacts in the direction of arrow (A) until the 180° signal turns ON. Then the roller passes the peak of the feed cam. The ribbon take up slider then moves back and forth rotating the pawl wheel, and the ribbon is advanced. Next the ribbon motor rotates from the brush contacts in a direction opposite arrow (A) until the 90° signal turns ON, and advances the ribbon.

c) Correction tape take up and feed:

The correction tape lift mechanism switches the ribbon cartridge holder from the standby state (Fig. D-2) to the shift up state (Fig. D-3). This changes the relative position between the tip of the correction tape drive lever having a fulcrum on the carriage base and the correction tape reel disk as shown in Figs. D-2, D-3 and D-4.

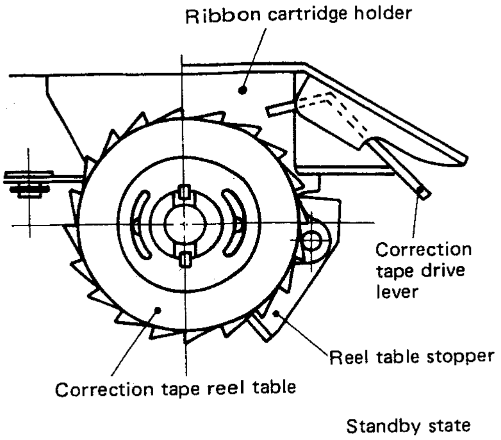

Ribbon cartridge holder
Correction tape drive lever
Reel table stopper
Correction tape reel table
Standby state

Fig. D-2

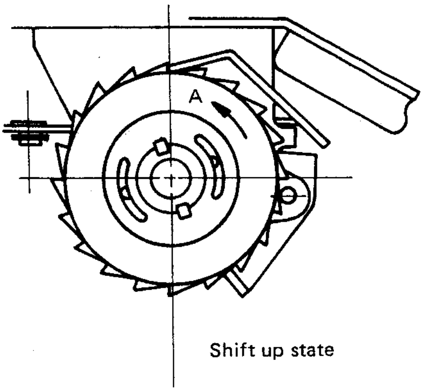

A
Shift up state

Fig. D-3

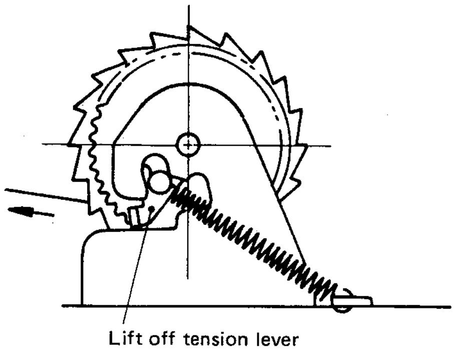

Lift off tension lever

Fig. D-4

Then the correction tape reel disk moves in the direction of arrow (A) by one tooth to advance the correction tape. To prevent the correction tape from slackening during correction, a tension bar and spring are provided on the supply side to maintain a back tension.

4-3-1. DISASSEMBLY

Refer to Fig. D-5

a) Remove 2 screws (D) and (E) that retain the cam follower to the ribbon holder. Lift the cam follower out of the carrier.

b) Manually move the carrier until the ribbon motor heat sink is over the square hole at the bottom of the main frame.

c) Remove screws (B) and (C).

d) Move the ribbon advance and feed assembly in the direction of arrow (F).

e) Pull the unit out of the right and unplug connectors (CN19) and (CN22) from the board at the bottom of the carrier.

f) Remove the mechanism from the carrier.

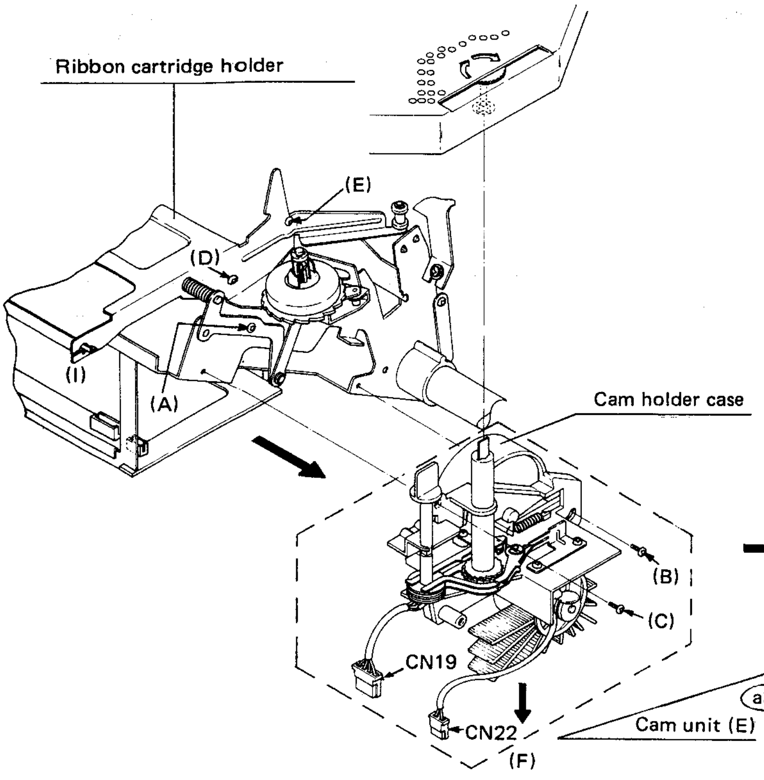


Fig. D-5

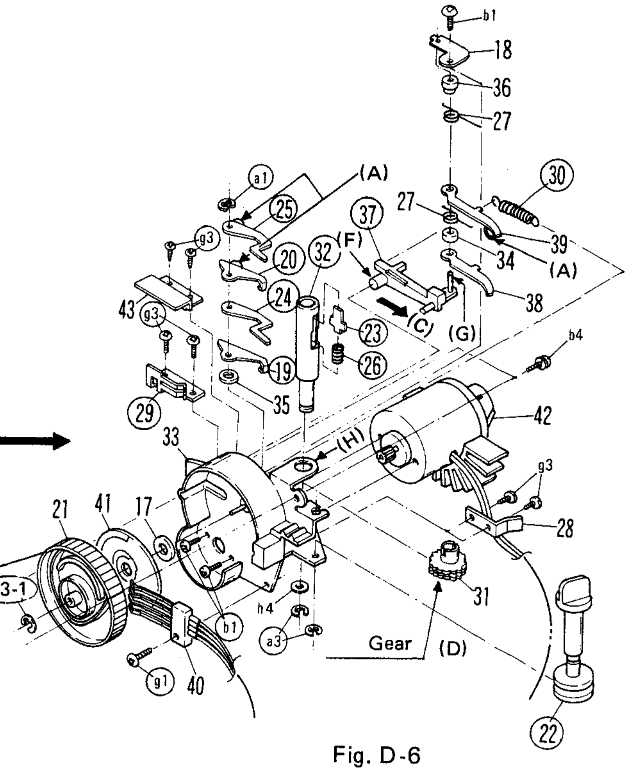


Fig. D-6

4-4. DISASSEMBLY OF THE RIBBON LIFT AND ADVANCE MECHANISM

After the ribbon lift and advance mechanism is removed from the carrier, follow the sequence below while referring to figure D-6 for disassembly of the unit.

a) Remove the "E" clip (a3-1) and slide the cam off its shaft.

b) Remove screw (g1), the brush assy. is now free.

c) Remove 2 screws (b1) to remove the ribbon motor.

d) Remove 2 screws (g3) and the pawl spring cover.

e) Remove 2 screws (g3) and pawl springs (29).

f) Remove "E" clip (a1) and the pawl levers (19, 20, 24, 25).

g) Remove the ribbon pitch advance cam (22) by removing the "E" clip (a3).

h) Remove "E" clip (a3) and the plastic washer, pull up on the shaft (32) and the ribbon take up gear can be removed.

The ribbon take up compression spring (26) and the ribbon take up plate (23) can be removed through gap (B) with tweezers by first compressing the spring, and removing the plate. Once the plate is removed the spring will come out through the hole on the top of the shaft.

i) Remove the ribbon take up spring (30), pull the take up slider (37) all the way in the direction of arrow (C) and out to the right.

Assembly of the Ribbon lift and feed mechanism is done in the reverse order, however, refer to fig. D-6 and Grease (Molykote X5-6020) the following parts: (D), (E), (F), (G) and (H).

Apply oil (Floyd 923) to brush contacts (40) and slip ring (41).

4-5. IMPACT HAMMER, TYPEWHEEL MOTOR ASSEMBLY REMOVAL

Refer to Figures E-1, E-2 and E-3.

Separate the hammer and wheel motor unit from the carrier as shown in Fig. E-1. Proceed with the following disassembly procedure. However, it is assumed that the ribbon cartridge holder assembly and the Ribbon advance mechanism are already separated from the carrier. For ribbon cartridge holder assembly removal refer to page 1-6.

a) Remove screws (15) which fasten the card holder support plate (15) to the carrier. Fig. E-2
b) Remove the two link/pivot pins (4). Fig. E-2
c) Remove the typewheel cartridge guides from the carrier frame by pushing in the direction of arrow (A) shown in Fig. E-2 on the plastic clasp attached to the guides (13) and (14).
d) Remove the typewheel motor support plate return spring (10) from the link/pivot pins (4) and, the carrier frame. Fig. E-2
e) Remove the typewheel motor and hammer connectors from the board on the bottom of the carrier. Fig. E-2
f) Remove the typewheel motor encoder board connector from the encoder board.
g) Grasp both ends of the impact hammer cover (B) and pull up to separate the hammer wheel motor unit from the carrier. Fig. E-1
h) Remove the ground connector.
i) Remove the connection board at the bottom of the carrier.
j) Remove 2 screws (b4) securing hammer cover (61). Lift up the hammer cover and remove it. Fig. E-3
k) Remove 2 screws (b2) and pull out the impact hammer solenoid in the direction of arrow (C). Fig. E-3
l) Remove 3 screws (b2) which fasten the typewheel motor to the impact hammer frame. Push the wheel motor in the direction of arrow (D) and remove the motor.

CAUTION: Do not scratch the wheel flange (E) Fig. 1 on the typewheel motor.

m) Remove the lock lever spring (9) and "E" clip (a3). The lock lever (7) and lock lever knob (59) can then be removed.

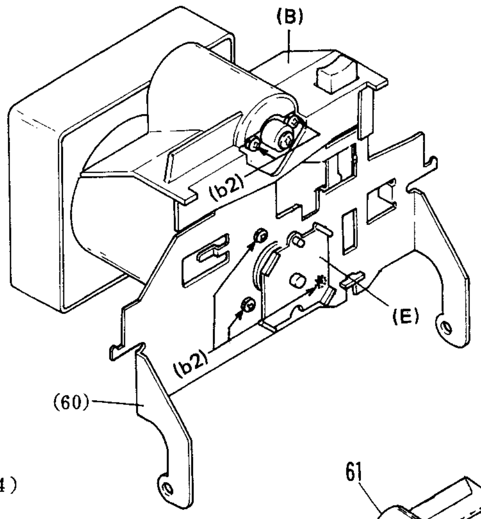


Fig. E-1

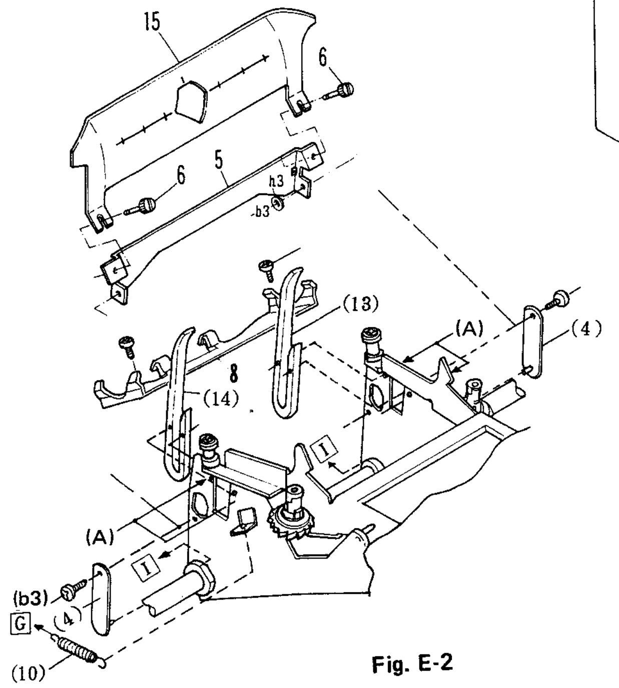


Fig. E-2

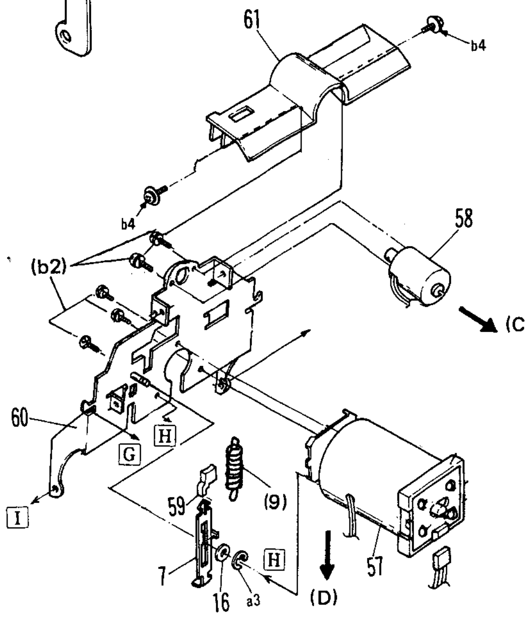


Fig. E-3

Assembly is done in the reverse order. However, when replacing the impact solenoid with a new unit, always push the hammer out of the solenoid in the direction of arrow (A) Fig. E-4 to be sure that it moves freely. Proceed with hammer instrallation.

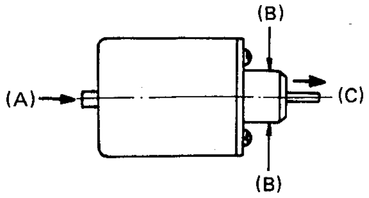


Fig. E-4

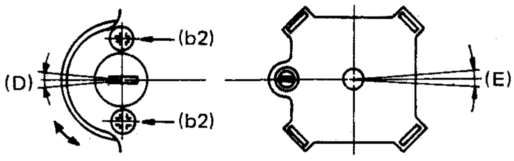


Fig. E-5

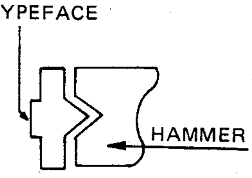


Fig. E-6

5. CARRIER (CARRIAGE) MOTOR ASSEMBLY

Refer to Fig. F-1.

The carrier motor rotates for the duration current that is applied to it from the main logic board. The logic board knows what position the carrier motor is in via an encoder wheel mounted on the rear shaft of the motor. When the motor rotates it causes the wire rope drum (61) to turn. The wire, wrapped around the drum, is suspended across to the left side of the printer frame where it is wrapped around an idler pulley (28) and streched back to the drum. The carrier is attached to the wire rope at a specific point, as indicated on the wire. When the carrier motor is energized it causes the drum to turn which pulls the wire around the idler pulley. This in turn causes the carrier to move back and forth across the typing surface.

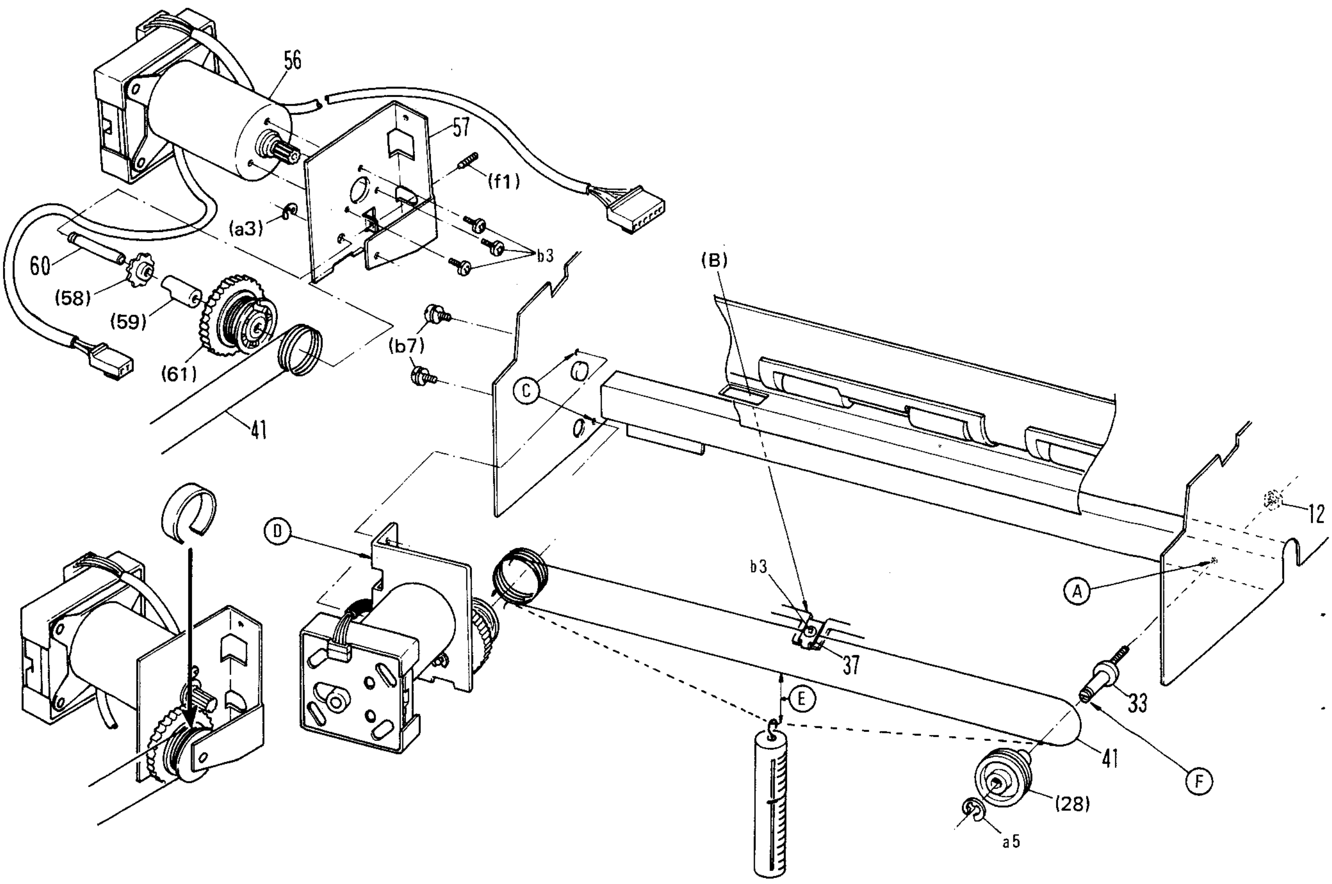


Fig. F-1

5-1. DISASSEMBLY

Refer to Fig. F-1.

It is assumed that the printer frame is out of the bottom housing. For removal sequence please refer to page 1-5.

a) Remove the fastening clip (37) which fastens the carrier to the wire rope. This is done by inserting a screwdriver between paper feed roller aseemblies. See point (B) of illustration.

b) Remove 2 screws (b7) which mount the carrier motor to the printer frame.

c) Unwind wire rope from drum and remove.

Refer to the upper left hand portion of the illustration F-1 for the following disassembly procedure.

a) Remove the "E" clip (a3) and push the drum shaft from the "E" clip side.

b) Pulling in the direction of arrow G will cause the drum (61), drum eccentric (59), eccentric adjusting knob (58) and adjusting knob ring (10) to come off the frame as one unit.

c) To remove the adjusting knob loosen the worm screws (f1).

Assembly is done in the reverse order with exception of the wire rope. To install the wire rope follow the procedure on this page.

5-2. INSTALLATION OF WIRE ROPE:

a) Place the metal fitting of the rope farthest away from the mark that indicates where the carrier is fastened into the drum as shown in the illustration. Fig. F-2

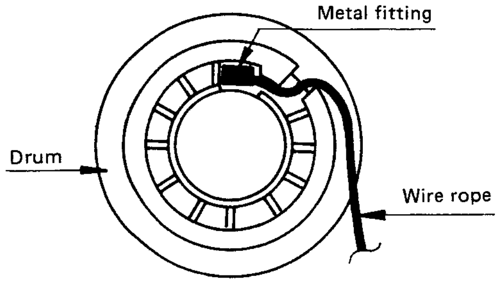


Fig. F-2

b) Wind the wire rope around the drum 6-1/2 times in the clockwise direction seen from the left side as illustrated. Fig. F-3

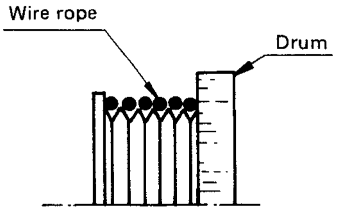


Fig. F-3

c) Slip the wire holder tool over the completely wound drum so the wire does not unwind. Fig. F-4

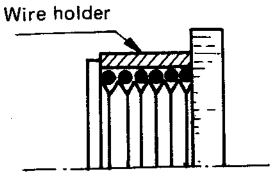


Fig. F-4

d) Insert the metal fitting on the other end of the rope into slot A then move it to locking position B, as illustrated. Fig. F-5

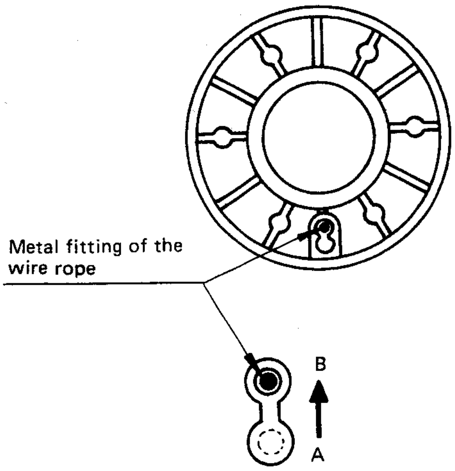


Fig. F-5

6. PAPER FEED MECHANISM

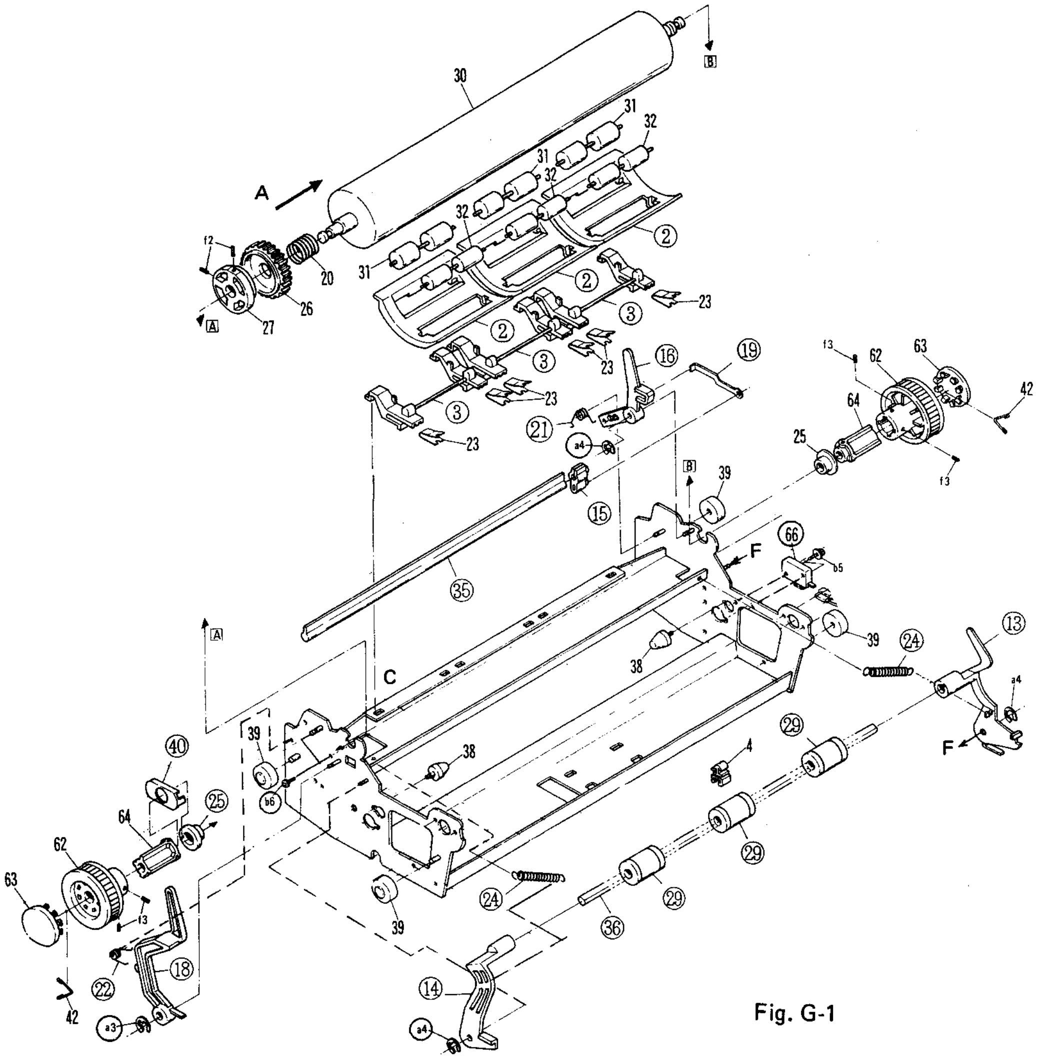


Fig. G-1

When the paper feed motor recieves a signal from the main logic board it energizes and starts to rotate. The motor will continue to rotate as long as current is applied to it. When it's rotating, it causes the paper feed gear to turn. The shaft on the paper feed gear is eccentric which causes ratchet "B" to move back and forth. When its moving in, it engages the ratchet wheel which is mounted to the platen. As ratchet "B" moves out, it causes the ratchet wheel to rotate the platen. For every complete revolution, the paper feed gear makes the platen rotate 1/12 of an inch. The detent roller attached to ratchet "A" is always in contact with the ratchet wheel. The detent is used to determine platen position and prevent the platen from slipping from the desired position.

6-1. DISASSEMBLY:

It is assumed that the printer frame is removed from the lower housing. For printer frame removal please refer to page 1-5.
Refer to figure G-1.

a) Remove the "E" clip (a3).
b) Remove kick spring (22).
c) Take off the feed lever (18).
d) Disconnect the paper feed motor and reed switch cables from the bottom of the printer frame.
e) Remove 2 screws (b6), the paper feed mechanism can now be separated from the printer frame.

Refer to Fig. G-3.

f) The feed mechanism mounting plate (44) can be removed by taking out 3 screws (g2).
g) Remove ratchet spring (48) and detent spring (47).
h) After removing the detent roller (50), pull out ratchets (45) and (46).
i) Pull out paper feed gear (49). The magnet (51) attached to the back side of the gear can then be removed.
j) To remove the motor (55) remove 2 screws (b1).
k) The micro switch assembly (52), (53), and (54) can be disassembled by removing screw (b4).

Assembly of the paper feed mechanism is done in the reverse order.

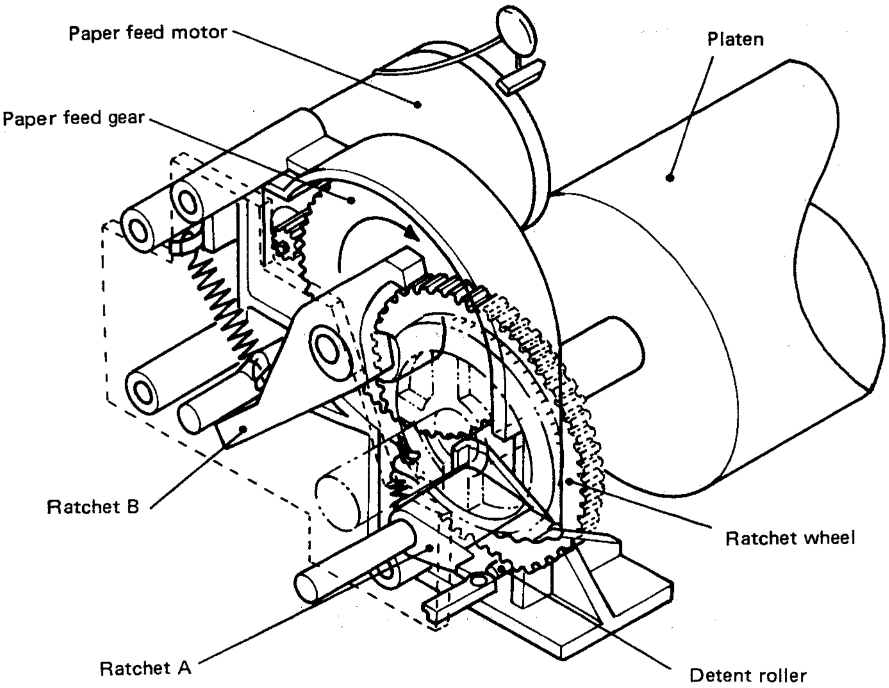

Paper feed motor
Paper feed gear
Platen
Ratchet B
Ratchet wheel
Ratchet A
Detent roller

Fig. G-2

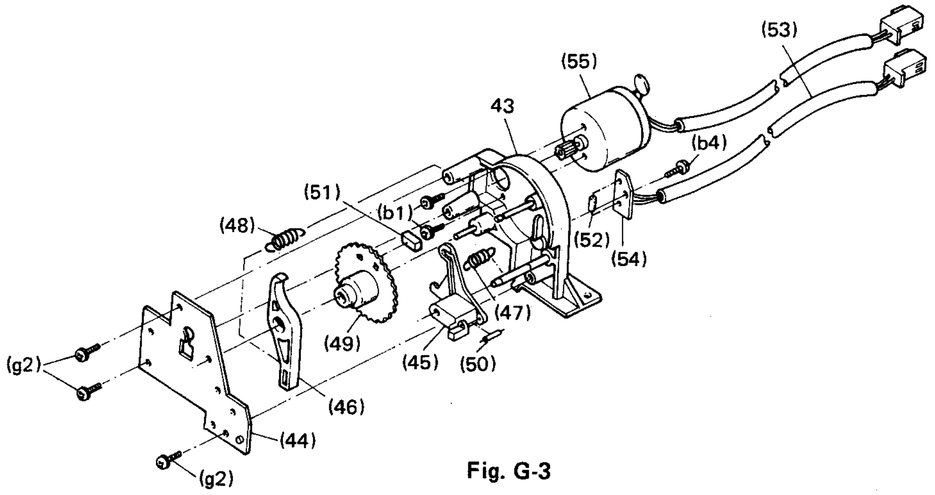

(53)
(55)
43
(b4)
(51)
(b1)
(48)
(52)
(54)
(47)
(49)
(g2)
(45)
(50)
(46)
(44)
(g2)

Fig. G-3

7. PLATEN

7-1. REMOVAL

Refer to figure G-1.

a) Remove the platen knobs on both sides of the platen using a 2mm allen wrench.
b) Remove the clutch ring (40) on the left side of the platen.
c) Remove the bearings (25) on both sides of the platen.
d) Lift the platen up and off of the printer frame.

Installation is done in the reverse order, when installing the platen knobs, make certain the knob with the clutch ring actuator is on the left side of the platen.

8. PAPER BAIL ASSEMBLY

Refer to fig. G-1 parts #13, 14, 24, 29, and 36.
The paper bail is used to properly press the paper against the platen so the paper doesn't float during printing. The paper bail aids in preventing misalignment of print and poor paper advance.

8-1. DISASSEMBLY

a) Remove "E" clip (a4) securing the bail levers (13) and (14).
b) Remove the springs (24) from both sides of the paper bail.
c) Slip the Lever (14) off the shaft on the main printer frame and remove the paper bail assembly as a unit.
Assembly is done in the reverse order.

9. PAPER INJECTOR SWITCH

Refer to Fig. G-1

The paper injector switch (66) mounted on the right side of the printer frame is actuated when the paper bail lever is pulled all the way forward. It is mounted with two screws and there is no special adjustment. The holes in the printer frame will cause the switch to be properly positioned on installation.

10. PAPER RELEASE MECHANISM

Paper release mechanism

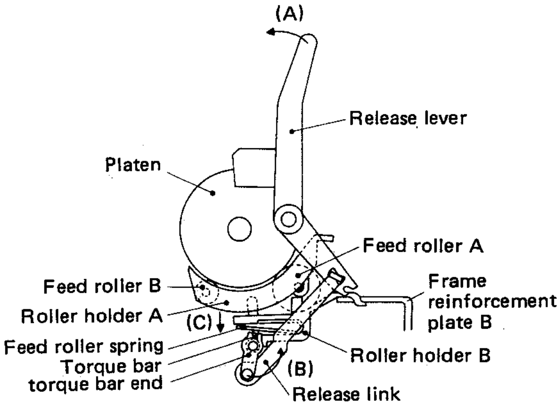


Fig. G-4

Refer to Fig. G-4
By moving the release lever in the direction of arrow (A). The torque bar moves in the direction of arrow (B). This is due to the release link connected to the release lever. When the bar moves it is being lowered at the same time which expands the feed roller springs. This takes the pressure off the feed rollers so they lower also, causing the contact between the rollers and the platen to be eliminated.
The paper is now free to move and be relocated around the platen.

10-1. DISASSEMBLY

It is assumed that the printer frame is out of the bottom housing and that the platen is removed. For printer frame removal please refer to page 1-5. For platen removal please refer to page 1-15 Fig. G-1
a) Lift up the roller holder (2) and remove.
b) Lift up the center of the roller holder (3) and pull out of the mounting holes.
c) Remove kick spring (21) and "E" clip (a4) on the release lever. (16).
d) Remove release link (19) from the release lever (16) and the end of the torque bar (15).
e) Remove the torque bar (35).
Assembly is done in the reverse order.

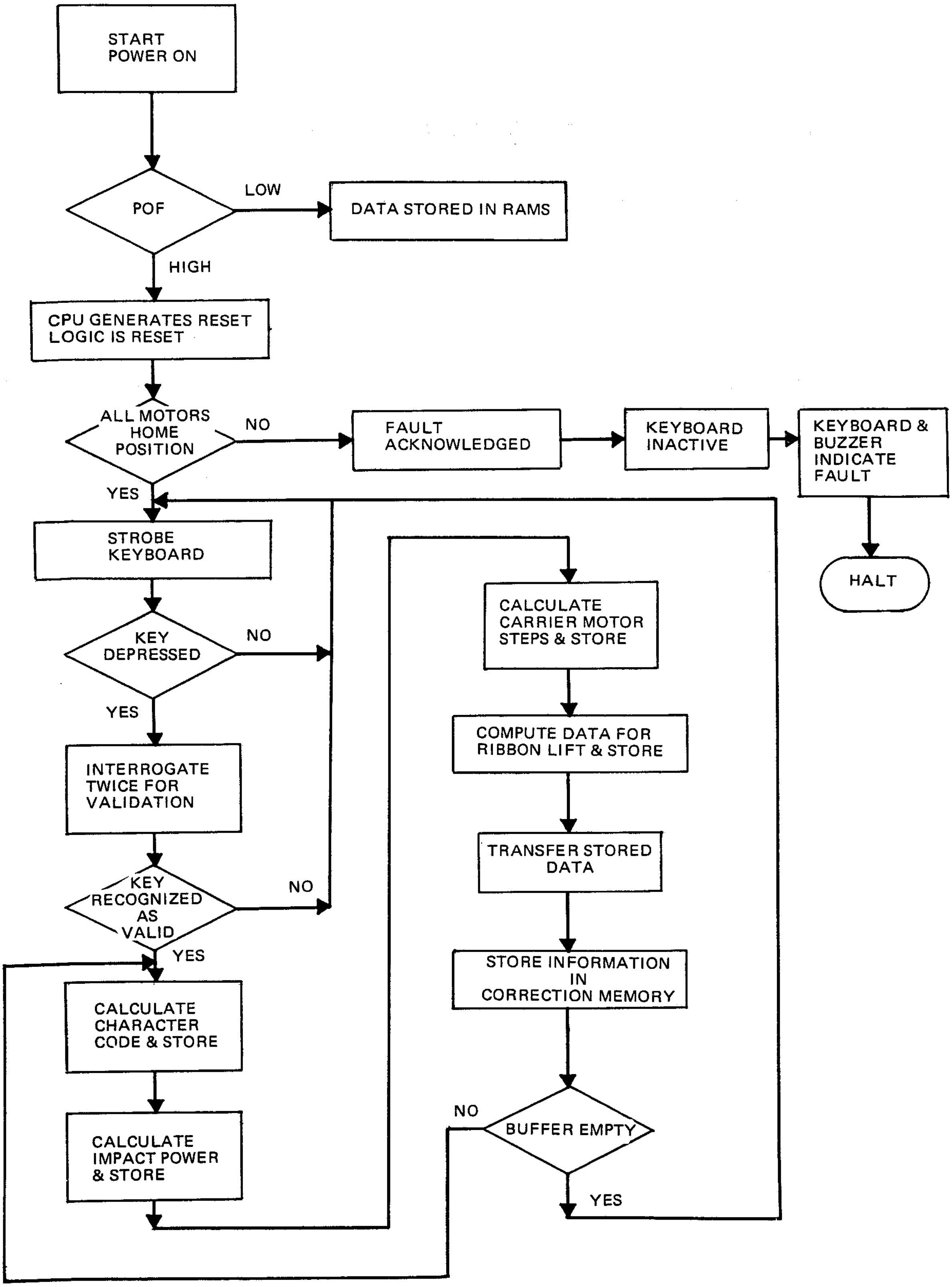
II. ELECTRONIC BOARD DESCRIPTIONS, REMOVAL AND REPLACEMENT

1. CHARACTOR PRINT LOOP 2-1
2. MAIN LOGIC BOARD 2-2
  2-1. Removal 2-2
3. DISPLAY BOARD REMOVAL 2-5
4. POWER SUPPLY 2-5
  4-1. Circuit Description 2-5
    4-1-1. Line Filtering Circuit 2-5
    4-1-2. Primary Transformer 2-6
    4-1-3. Secondary Output Circuit 2-7
  4-2. Removal 2-9

5. KEYBOARD

  5-1. Keyboard Description 2-10
  5-2. Trouble Shooting 2-10
  5-3. Dip-switch 2-10

1. CHARACTOR PRINT LOOP


START
POWER ON
POF
LOW
DATA STORED IN RAMS
HIGH
CPU GENERATES RESET
LOGIC IS RESET
ALL MOTORS HOME POSITION
NO
FAULT ACKNOWLEDGED
KEYBOARD INACTIVE
KEYBOARD & BUZZER INDICATE FAULT
HALT
YES
STROBE KEYBOARD
KEY DEPRESSED
NO
YES
INTERROGATE TWICE FOR VALIDATION
KEY RECOGNIZED AS VALID
NO
YES
CALCULATE CHARACTER CODE & STORE
CALCULATE IMPACT POWER & STORE
CALCULATE CARRIER MOTOR STEPS & STORE
COMPUTE DATA FOR RIBBON LIFT & STORE
TRANSFER STORED DATA
STORE INFORMATION IN CORRECTION MEMORY
BUFFER EMPTY
NO
YES

2. MAIN LOGIC BOARD

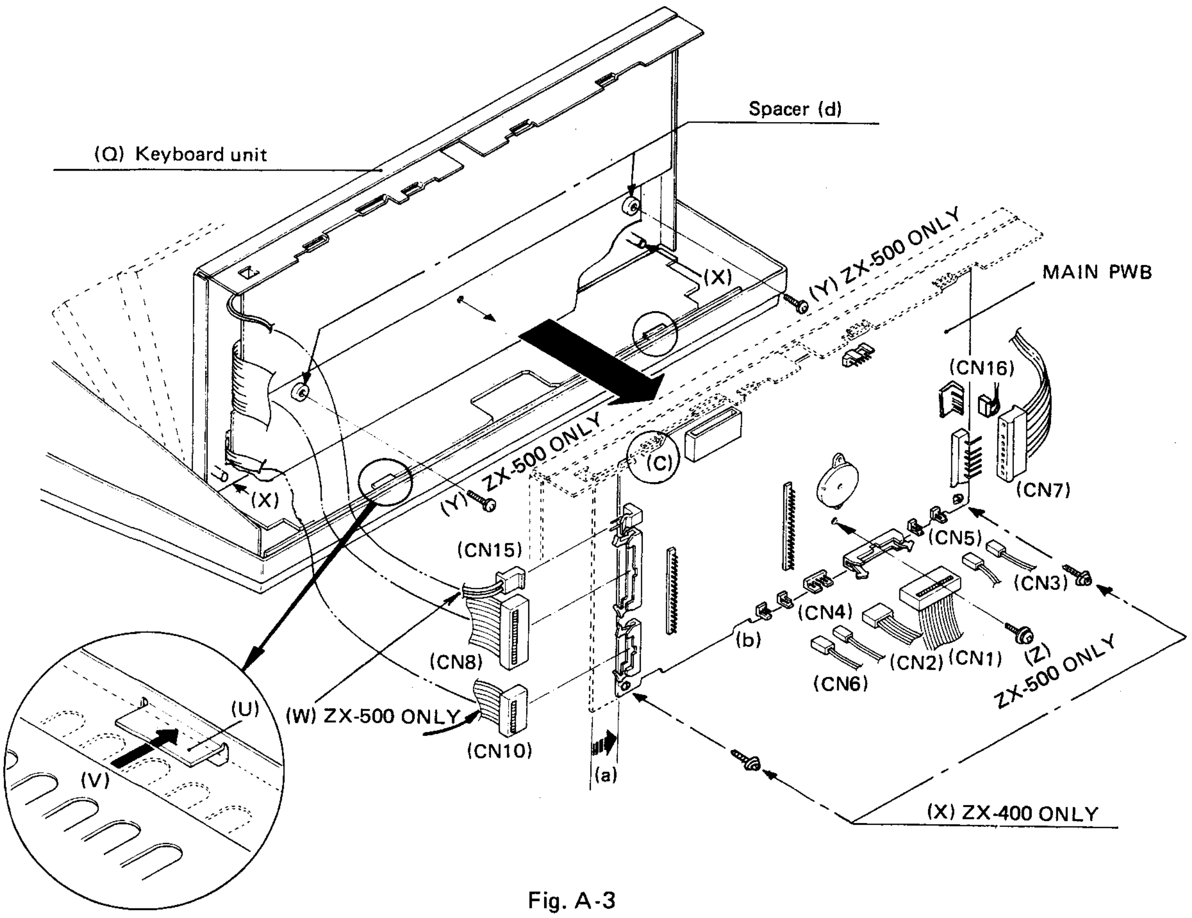

(Q) Keyboard unit
Spacer (d)
(X)
(Y) ZX-500 ONLY
MAIN PWB
(CN16)
(CN7)
(C)
(Y) ZX-500 ONLY
(X)
(CN15)
(CN5)
(CN3)
(CN4)
(b)
(CN8)
(CN2)
(CN1)
(Z) ZX-500 ONLY
(CN6)
(U)
(W) ZX-500 ONLY
(V)
(CN10)
(a)
(X) ZX-400 ONLY

Fig. A-3

The main logic board (PWB) is mounted on the keyboard unit underneath the keyboard. The main PWB is the heart of the electronic typewriter in that all functions, motors, solenoids and operations are controlled by it.

2-1. REMOVAL

Refer to wiring diagram pages 2-3 and 2-4.

a) Unplug the following connectors:

CN1	Flat cable to carrier
CN2	Carrier motor photo encoder
CN3	Carrier motor
CN4	Paper feed motor reed switch
CN5	Paper feed motor
CN6	Auto paper insert switch
CN7	Power supply
CN8	Keyboard
CN10	Keyboard (ZX-500 only)
CN15	Display PWB (ZX-500 only)
CN16	Cover switch

Refer to fig. A-3 for steps (b) & (c).

ZX-400 Main board removal:

b) Remove 2 screws from the bottom of the board.

c) Slip the board off the top brass retaining post, the board is now free. Guard it from static electricity.

NOTE: Refer to The Sharp Policies and Procedures manual for board repair.

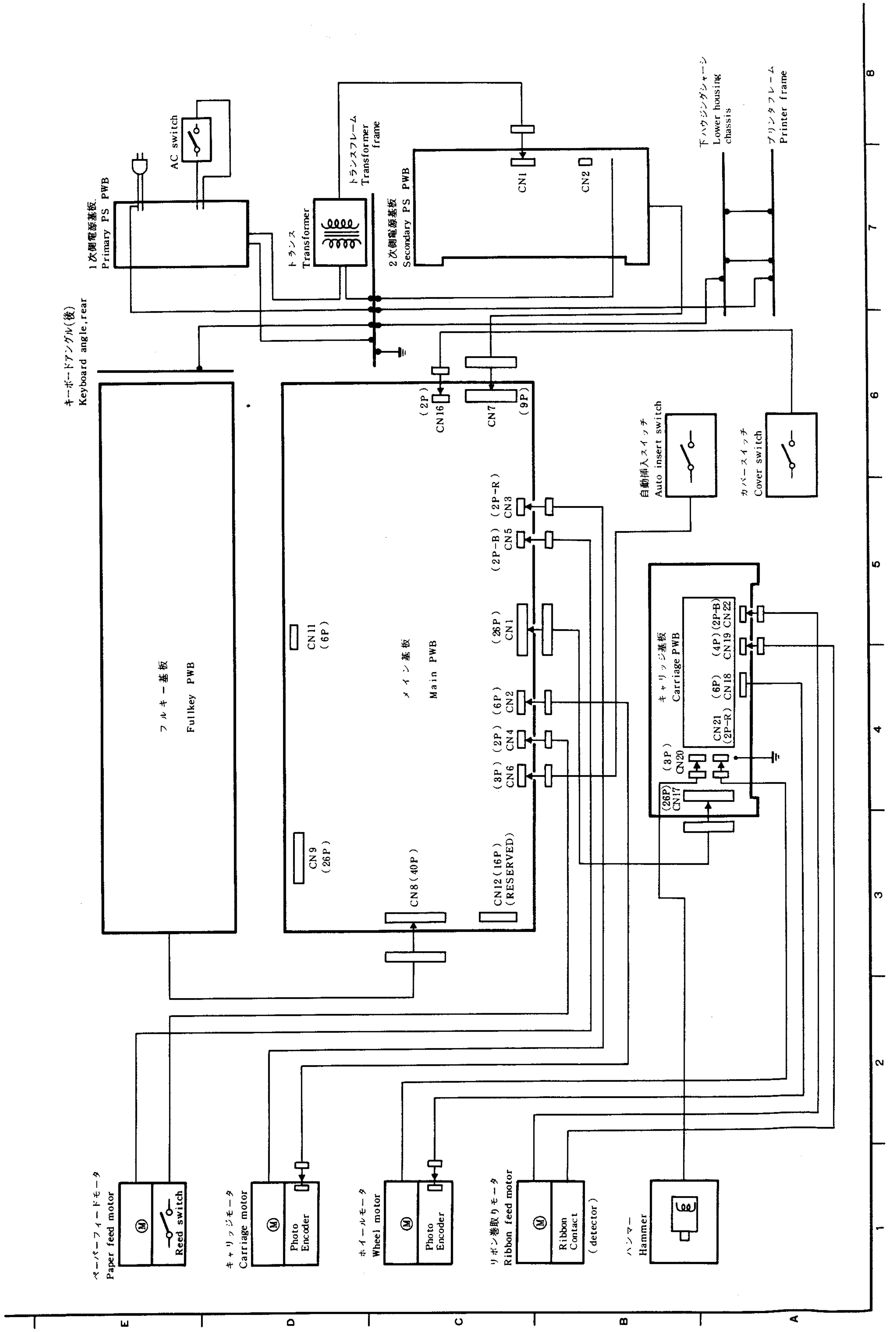
ZX-500 Main board removal:

Follow step a) above.

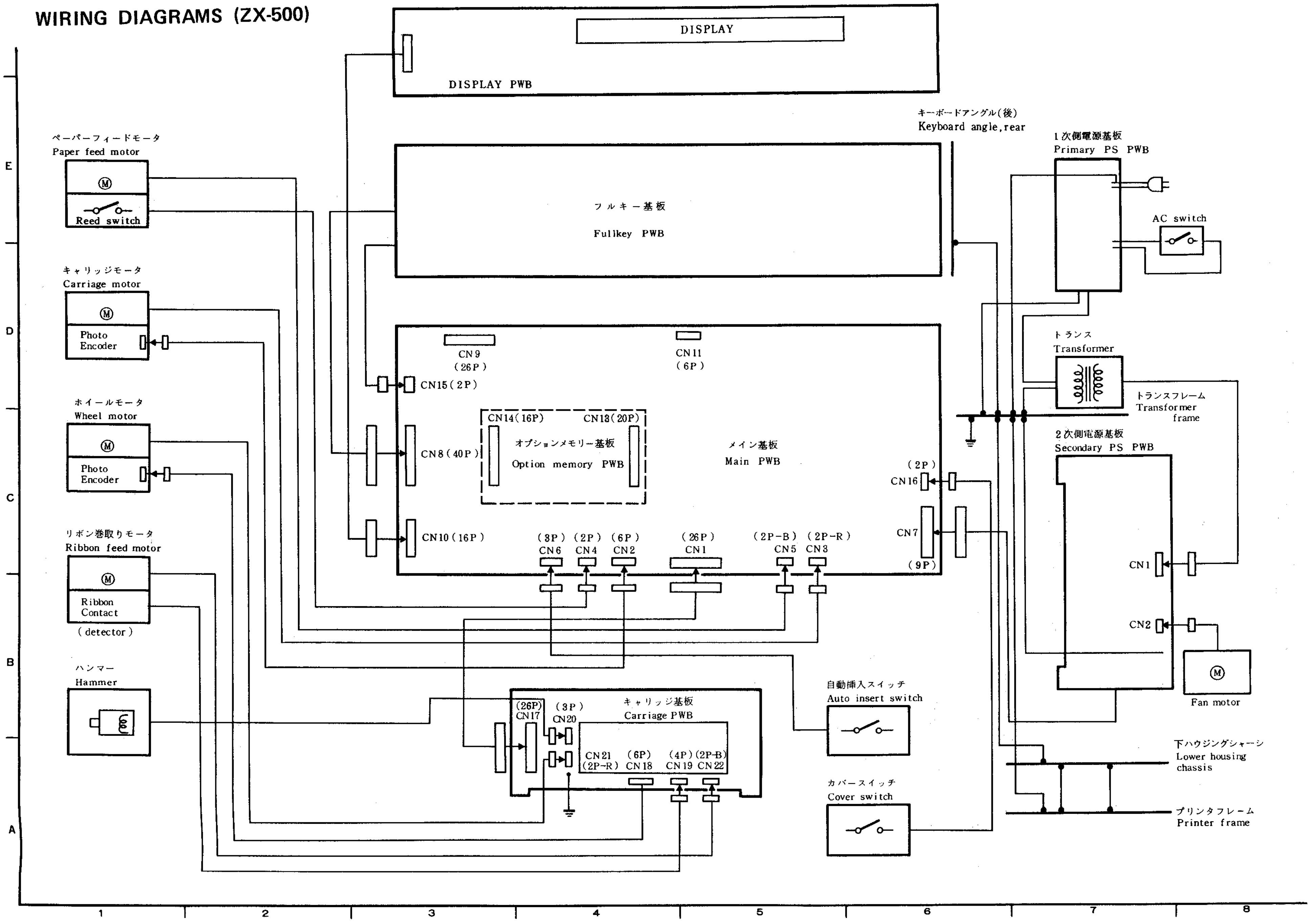
Refer to fig. A-3.

b) Remove 1 screw (Z) securing the board.

WIRING DIAGRAMS (ZX-400)


1次側電源基板
Primary PS PWB
AC switch
トランス
Transformer
トランスフレーム
Transformer frame
2次側電源基板
Secondary PS PWB
CN1
CN2
下ハウジングシャーシ
Lower housing chassis
プリンタフレーム
Printer frame
キーボードアングル(後)
Keyboard angle, rear
フルキー基板
Fullkey PWB
メイン基板
Main PWB
CN16 (2P)
CN7 (9P)
CN11 (6P)
CN9 (26P)
CN8 (40P)
CN12 (16P) (RESERVED)
CN3 (2P-R)
CN5 (2P-B)
CN1 (26P)
CN2 (6P)
CN4 (2P)
CN6 (3P)
自動挿入スイッチ
Auto insert switch
カバースイッチ
Cover switch
キャリッジ基板
Carriage PWB
CN22 (2P-B)
CN19 (4P)
CN18 (6P)
CN21 (2P-R)
CN20 (3P)
CN17 (26P)
ペーパーフィードモータ
Paper feed motor
M
Reed switch
キャリッジモータ
Carriage motor
M
Photo Encoder
ホイールモータ
Wheel motor
M
Photo Encoder
リボン巻取りモータ
Ribbon feed motor
M
Ribbon Contact (detector)
ハンマー
Hammer
1
2
3
4
5
6
7
8
A
B
C
D
E

WIRING DIAGRAMS (ZX-500)


DISPLAY
DISPLAY PWB
キーボードアングル(後)
Keyboard angle, rear
1次側電源基板
Primary PS PWB
AC switch
ペーパーフィードモータ
Paper feed motor
Ⓜ
Reed switch
フルキー基板
Fullkey PWB
キャリッジモータ
Carriage motor
Ⓜ
Photo Encoder
CN9 (26P)
CN11 (6P)
CN15 (2P)
トランス
Transformer
トランスフレーム
Transformer frame
CN14 (16P)
CN13 (20P)
オプションメモリー基板
Option memory PWB
メイン基板
Main PWB
CN8 (40P)
ホイールモータ
Wheel motor
Ⓜ
Photo Encoder
2次側電源基板
Secondary PS PWB
(2P) CN16
CN7 (9P)
CN10 (16P)
(3P) CN6
(2P) CN4
(6P) CN2
(26P) CN1
(2P-B) CN5
(2P-R) CN3
CN1
CN2
リボン巻取りモータ
Ribbon feed motor
Ⓜ
Ribbon Contact
(detector)
ハンマー
Hammer
Ⓜ
Fan motor
キャリッジ基板
Carriage PWB
(26P) CN17
(3P) CN20
CN21 (2P-R)
(6P) CN18
(4P) CN19
(2P-B) CN22
自動挿入スイッチ
Auto insert switch
下ハウジングシャーシ
Lower housing chassis
カバースイッチ
Cover switch
プリンタフレーム
Printer frame
E
D
C
B
A
1
2
3
4
5
6
7
8

3. DISPLAY BOARD REMOVAL

To remove the display board from the ZX-500 follow the below procedure:
a) Remove main PWB as described on page 2-2.
Refer to fig. A-3 page (2-2).
b) Remove 2 screws (Y) from the display board.
c) Remove the spacers and lift the display board out.
NOTE: Refer to the Sharp Policies and Procedures manual for board repair.

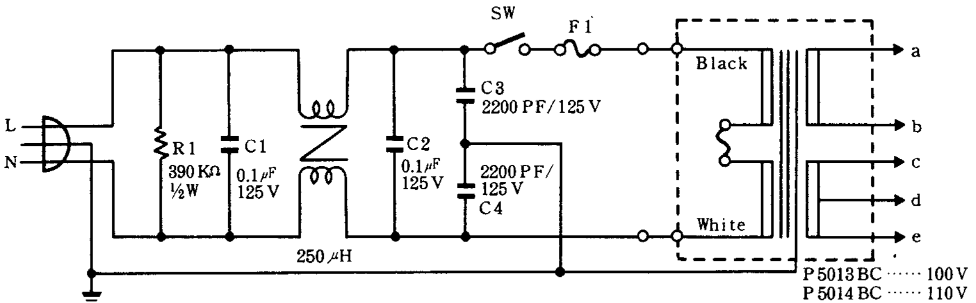
4. POWER SUPPLY

4-1. CIRCUIT DESCRIPTION

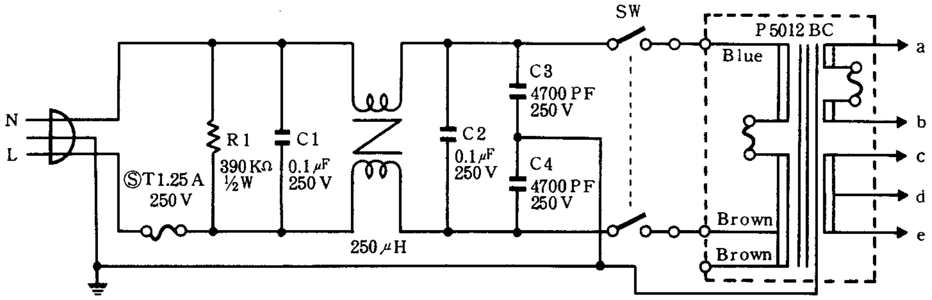
The power supply of the ZX series typewriters consisits of three units:
a) LINE FILTERING CIRCUIT
b) PRIMARY TRANSFORMER
c) SECONDARY OUTPUT CIRCUIT

4-1-1. LINE FILTERING CIRCUIT

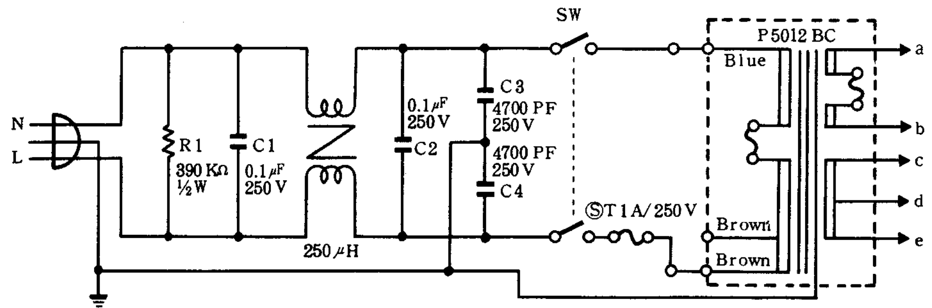
Refer to schematic below.
The "Line filtering circuit" is designed to eliminate any noise coming in to the transformer. This is done with a series of capacitors and a coil. The output of the line filter goes through the on/off switch to the primary of the transformer.


SW
F1
L
N
R1
390 KΩ
½W
C1
0.1μF
125 V
250 μH
C2
0.1μF
125 V
C3
2200 PF/125 V
2200 PF/
125 V
C4
Black
White
a
b
c
d
e
P5013BC ······ 100V
P5014BC ······ 110V
P5011BC ······ 120V

(2) Power input circuitry for AC220V rated machine

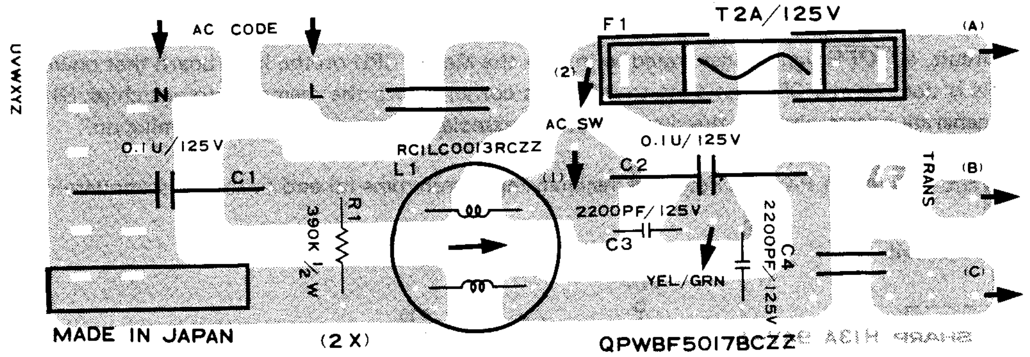

SW
P5012BC
N
L
ⓈT1.25 A
250 V
R1
390 KΩ
½W
C1
0.1μF
250 V
250 μH
C2
0.1μF
250 V
C3
4700 PF
250 V
C4
4700 PF
250 V
Blue
Brown
Brown
a
b
c
d
e

(3) Power input circuitry for AC240V rated machine

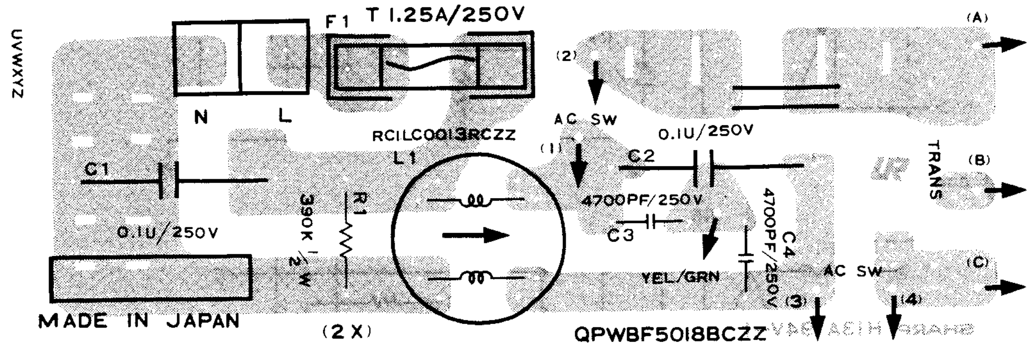

SW
P5012BC
N
L
R1
390 KΩ
½W
C1
0.1μF
250 V
250 μH
0.1μF
250V
C2
C3
4700 PF
250 V
4700 PF
250 V
C4
ⓈT1A/250V
Blue
Brown
Brown
a
b
c
d
e

The illustration below is provided for easy component identification on the "Line filtering circuit board" (Primary PS PWB).

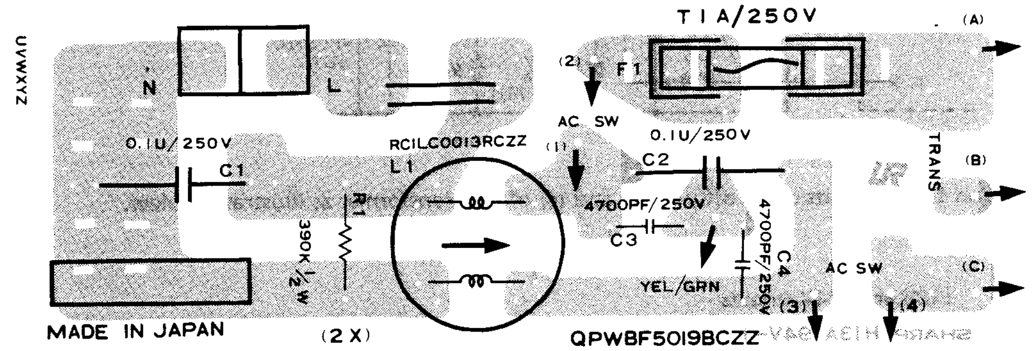
(1) 100V/120V


UVWXYZ
AC CODE
N
L
F1
T2A/125V
(A)
(2)
AC SW
0.1U/125V
RC1LC0013RCZZ
L1
(1)
0.1U/125V
C1
C2
R1
390K 1/2W
2200PF/125V
C3
C4
2200PF/125V
TRANS
(B)
(C)
YEL/GRN
MADE IN JAPAN
(2X)
QPWBF5017BCZZ

(2) 220V


UVWXYZ
F1
T 1.25A/250V
(A)
(2)
N
L
AC SW
RC1LC0013RCZZ
L1
(1)
0.1U/250V
C1
C2
0.1U/250V
R1
390K 1/2W
4700PF/250V
C3
C4
4700PF/250V
TRANS
(B)
YEL/GRN
AC SW
(C)
(3)
(4)
MADE IN JAPAN
(2X)
QPWBF5018BCZZ

(3) 240V


UVWXYZ
T 1A/250V
(A)
(2)
F1
N
L
AC SW
0.1U/250V
RC1LC0013RCZZ
L1
(1)
0.1U/250V
C1
C2
R1
390K 1/2W
4700PF/250V
C3
C4
4700PF/250V
TRANS
(B)
YEL/GRN
AC SW
(C)
(3)
(4)
MADE IN JAPAN
(2X)
QPWBF5019BCZZ

4-1-2. PRIMARY TRANSFORMER

The transformer is protected from eccessive current input from the line filter circuit by a fuse. Internal to the transformer are two thermal fuses. These fuses are provided to protect the transformer. If the thermal fuses open, the transformer itself must be replaced as these fuses are not accessable. The transformer takes the incoming voltage and steps it down to the values illustrated below.

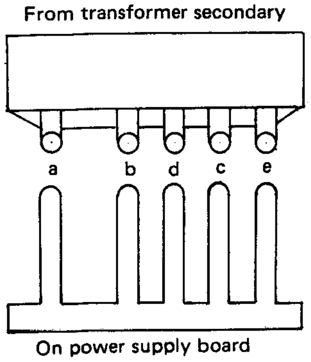

From transformer secondary
a
b
d
c
e
On power supply board

Fig. B-7

a) Voltage

Terminal	No-load voltage	Related voltage
c + d	AC25.6±0.5V	DC + 30.4±1.5V
e + d	AC25.6±0.5V	DC − 30.4±1.5V
a + b	AC10.8±0.3V	DC 11.8±0.6V

b) Thermal fuse

AC input voltage	Operating temperature	Applied transformer parts code
120V	130±2°C	RTRNP5011BCZZ
220/240V	132 + 0 − 6°C	RTRNP5012BCZZ
100V	130 ±2°C	RTRNP5013BCZZ

4-1-3. SECONDARY OUTPUT CIRCUIT

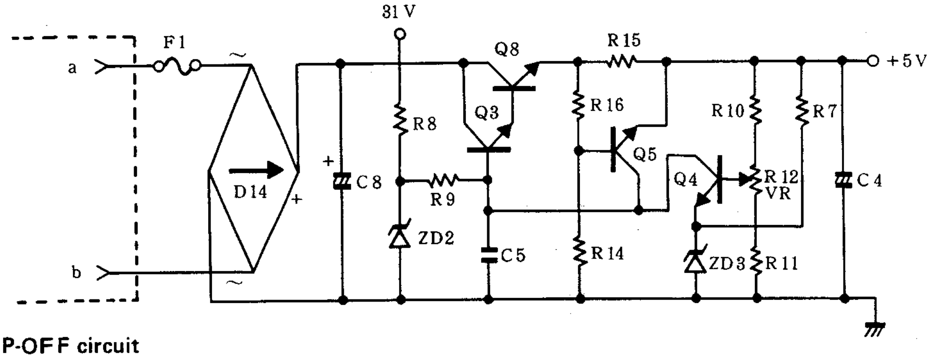
The AC voltage described on the previous page is now sent over to the secondary output circuit. The secondary circuit supplies the operating DC voltages to the main PWB. In the ZX series typewriters five different voltages are required for operation.
+5 volts, +12 volts, −12 volts, +24 volts, −24 volts.

Also from this circuit, a $\overline{\text{P-OFF}}$ signal is generated to inform the Master CPU on the logic board that power is either coming on or going off. This is done so the CPU has time to dump its contents into the memory storage chips (RAM's) when power is going off and to generate a reset signal to the slave CPU's and associate logic when power is coming on.

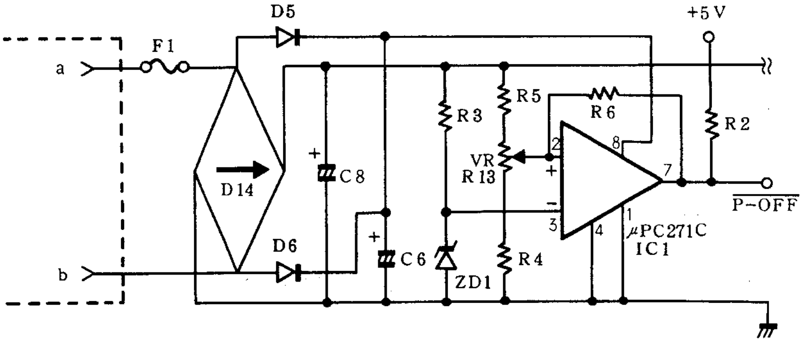
a) +5V, ±12V, ±24V and P-OFF circuits

The +5V volt circuit and the P-OFF circuit are reciving input from pins (a) and (b) of the secondary of the transformer, as illustrated.

+5V circuit

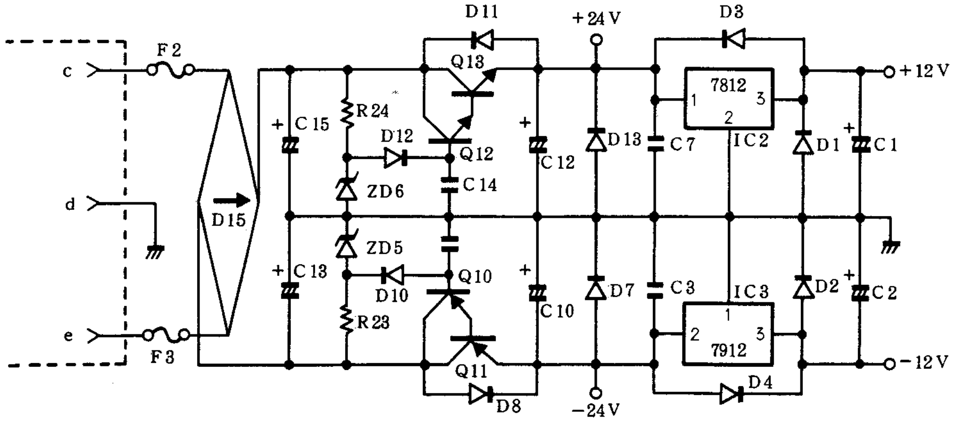

31 V
a
b
F1
~
~
+
D14
C8
+
R8
ZD2
Q8
Q3
R9
C5
R15
R16
Q5
R14
Q4
ZD3
R10
R12
VR
R11
R7
C4
+5V

P-OFF circuit


D5
F1
a
b
D14
+
C8
D6
+
C6
R3
ZD1
R5
VR
R13
R4
R6
2
+
−
3
4
8
7
1
μPC271C
IC1
+5V
R2
P−OFF

The ±12V and ±24V circuits come off pins (c) and (e) of the transformer as illustrated below.

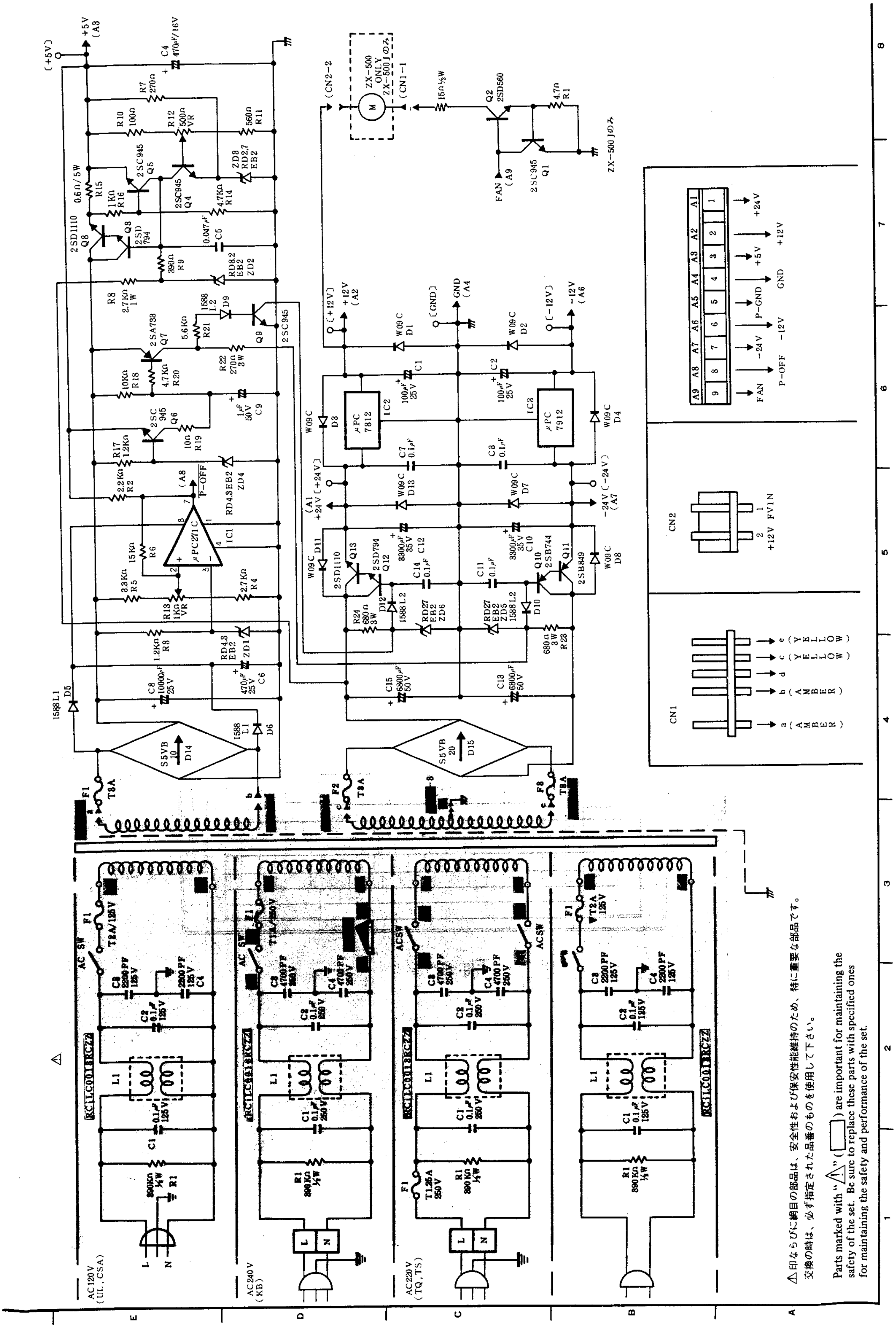
±12V and ±24V circuits


c
d
e
F2
F3
D15
+
C15
+
C13
R24
D12
ZD6
ZD5
D10
R23
D11
Q13
Q12
C14
Q10
Q11
D8
+
C12
+
C10
+24V
−24V
D13
D7
C7
C3
D3
7812
1
2
3
IC2
IC3
1
2
3
7912
D4
D1
D2
+
C1
+
C2
+12V
−12V

b) FAN MOTOR DRIVE CIRCUITRY

The fan motor is driven by the master CPU (UPD7800G) on the main board. Refer to complete power supply schematic on page 2-8. The transistor Q2 and resistor R1 are used to limit current when the ZX-500 is on, but not being used the fan motor does'nt operate. The motor turns on when the typist begins operations. At this time the fan motor current will be limited to 200ma. When the fan motor turns on it will continue to run for 15 seconds after the last keyboard entry is made.

POWER SUPPLY


(+5V)
+5V (A3)
C4 470μF/16V
R7 270Ω
R10 100Ω
R12 500Ω VR
R11 560Ω
ZD8 RD2.7 EB2
0.6Ω/5W R15
1KΩ R16
2SC945 Q5
2SC945 Q4
4.7KΩ R14
2SD1110 Q8
2SD794 Q3
0.047μF C5
390Ω R9
RD82 EB2 ZD2
R8 2.7KΩ 1W
2SA733 Q7
5.6KΩ R21
1588 L2 D9
Q9 2SC945
10KΩ R18
4.7KΩ R20
R22 270Ω 3W
1μF 50V C9
2SC945 Q6
10Ω R19
R17 1.2KΩ
2.2KΩ R2
(A8) P-OFF
RD4.3EB2 ZD4
15KΩ R6
μPC271C IC1
3.3KΩ R5
2.7KΩ R4
R13 1KΩ VR
1.2KΩ R3
RD4.3 EB2 ZD1
C8 10000μF 25V
470μF 25V C6
1588 L1 D5
1588 L1 D6
S5VB 10 D14
S5VB 20 D15
F1 T8A
F2 T8A
F3 T8A
(CN2-2)
ZX-500 ONLY ZX-500のみ
M
(CN1-1)
15Ω½W
Q2 2SD560
4.7Ω R1
FAN (A9)
2SC945 Q1
ZX-500のみ
(+12V)
+12V (A2)
(GND)
GND (A4)
(−12V)
−12V (A6)
W09C D1
W09C D2
W09C D3
W09C D4
C1 100μF 25V
C2 100μF 25V
μPC 7812 IC2
μPC 7912 IC3
C7 0.1μF
C3 0.1μF
(A1) +24V (+24V)
−24V (−24V) (A7)
W09C D13
W09C D7
W09C D11
W09C D8
2SD1110 Q13
2SD794 Q12
3300μF 35V C12
3300μF 35V C10
C14 0.1μF
C11 0.1μF
Q10 2SB744
Q11 2SB849
D12 1588L2
D10 1588L2
RD27 EB2 ZD6
RD27 EB2 ZD5
R24 680Ω 3W
680Ω 3W R23
C15 6800μF 50V
C13 6800μF 50V
A1 A2 A3 A4 A5 A6 A7 A8 A9
1 2 3 4 5 6 7 8 9
+24V
+12V
+5V
GND
P-GND
−12V
−24V
P-OFF
FAN
CN2
1 FV1N
2 +12V
CN1
e (YELLOW)
c (YELLOW)
d
b (AMBER)
a (AMBER)
AC120V (UL, CSA)
AC240V (KB)
AC220V (TQ, TS)
RC1LC0018RCZZ
L
N
390KΩ ½W R1
C1 0.1μF 125V
C1 0.1μF 250V
L1
C2 0.1μF 125V
C2 0.1μF 250V
C3 2200PF 125V
C4 2200PF 125V
C3 4700PF 250V
C4 4700PF 250V
AC SW
ACSW
F1 T2A/125V
F1 T1A/250V
F1 T1.25A 250V
F1 T2A 125V
1 2 3 4 5 6 7 8
A B C D E

△印ならびに網目の部品は、安全性および保安性能維持のため、特に重要な部品です。交換の時は、必ず指定された品番のものを使用して下さい。

Parts marked with "△" (▭) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

4-2. REMOVAL

Refer to fig. A-4.

a) Remove screw (L5) and the grounding wire (J6).

b) Remove the wire from wire holder "M" and "N".

c) Unplug connectors (CN1) & (CN2). Connector (CN2) on the ZX-500 only.

d) Remove 5 screws (R).

e) Move the power supply in the direction of arrow (S) and free it from the retainers (T).

TO REMOVE THE PRIMARY POWER SUPPLY FOLLOW THE PROCEDURE BELOW.

a) Unscrew the ground wire from the main PWB access plate.

b) Slide the on/off switch up and out.

c) Lift up and remove the black box (Line filter circuit) above the transformer.

d) Remove 4 screws fastening transformer to the bottom housing.

e) Remove 1 screws retaining the line cord to the bottom housing.

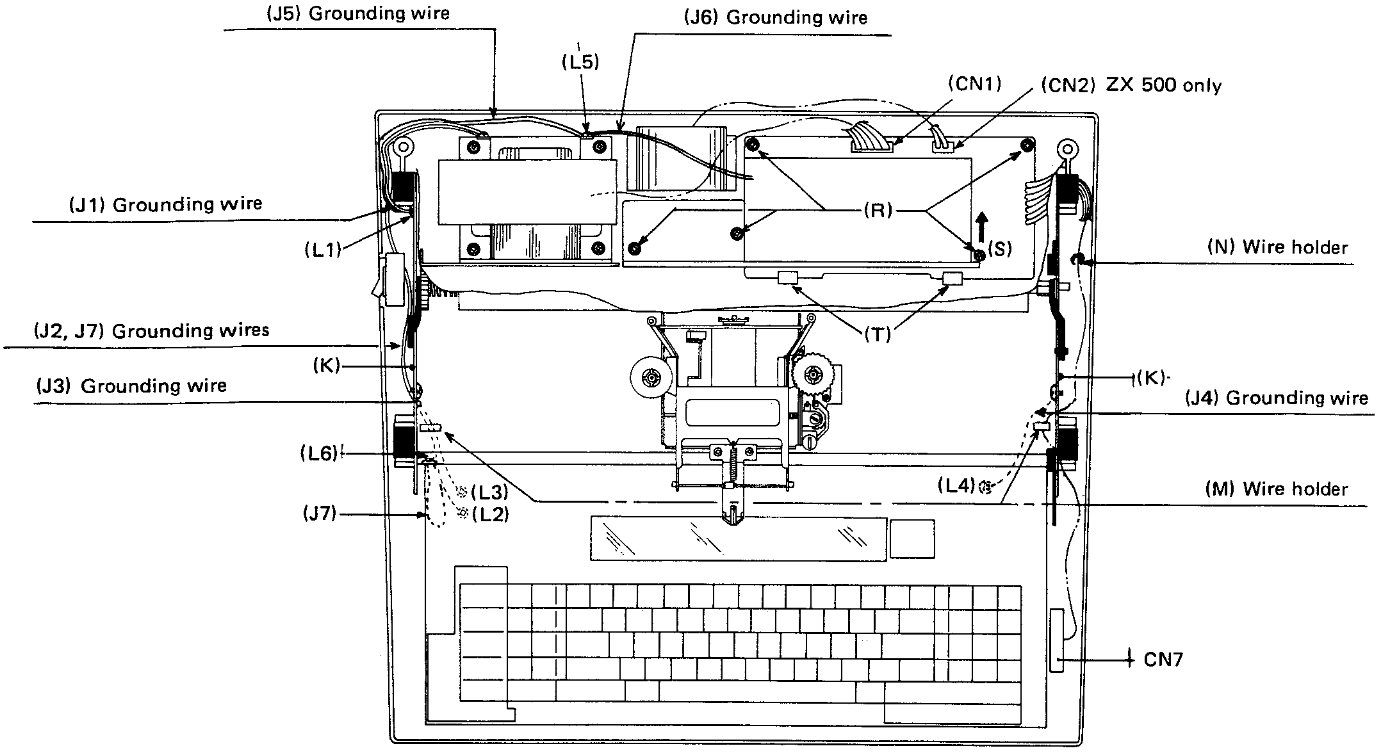

(J5) Grounding wire
(J6) Grounding wire
(L5)
(CN1)
(CN2) ZX 500 only
(J1) Grounding wire
(L1)
(R)
(S)
(N) Wire holder
(J2, J7) Grounding wires
(T)
(K)
(J3) Grounding wire
(K)
(J4) Grounding wire
(L6)
(L4)
(M) Wire holder
(L3)
(J7)
(L2)
CN7

Fig. A-4

5. KEY BOARD

5-1. KEYBOARD DESCRIPTION

The keyboard of the ZX series typewriters is controlled by the main CPU on the main PWB. The CPU sends out 4 select lines that go into the decoder chip on the Keyboard PWB. Coming out of the decoder are 10 strobe lines which intersect at various points in the keyboard matrix with return lines $\overline{RL0}$ thru $\overline{RL7}$.

These return lines go into a comparator circuit consisting of 2 chips (UPC 339) on the main PWB. These comparators each have 4 lines going to the main CPU. Together they make up the 8 bit signal which indicates which key has been depressed.

5-2. TROUBLE SHOOTING

If a series of keys on the keyboard fail to operate, determine if the keys are in the same ROW or COLUMN. If the keys are in the same column the decoder on the Keyboard PWB is probably at fault. If the keys are in the same ROW the Fault lies either in the comparator chip its return line is feeding, or the main CPU on the Main PWB. If a particular key switch fails to operate, the fault is probably in the key switch unit itself and should be replaced.

5-3. DIP-SWITCH

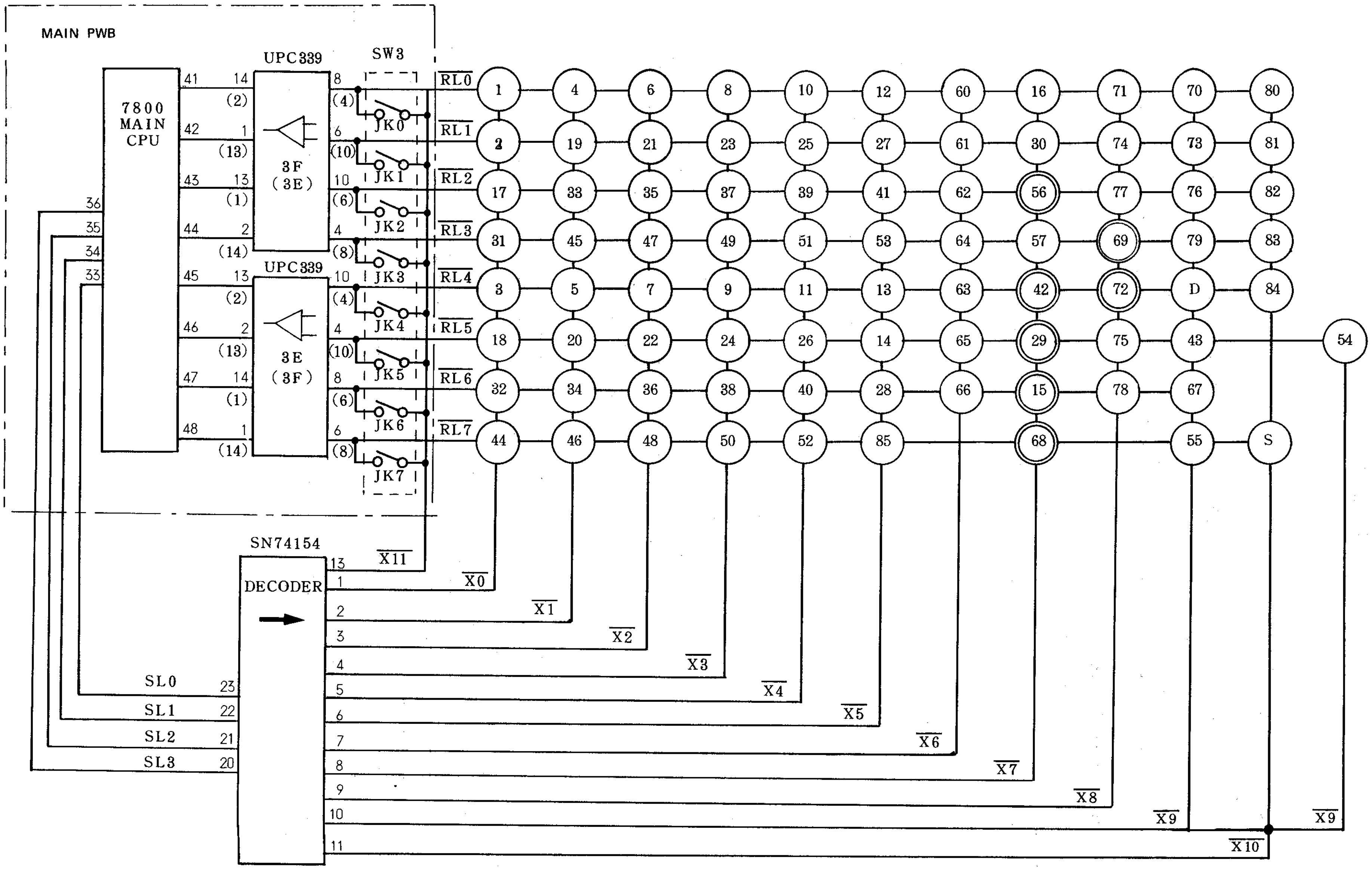
The 8-bit dip-switch mounted on the main board has been settedup to the specified positions, as table below. When the main board is newly replaced, check it whether the specified positions to be set up on the dip-switch. For more Detail, please refer to the service manual No.3.

Group		Country of Destination	JK Switch Set-Up							
			0	1	2	3	4	5	6	7
A	0	Sweden	0	0	0	0	0	1	x	x
	1	Finalnd	1	0	0	0	0	1	x	x
	2	Denmark	0	1	0	0	0	1	x	x
	3	Norway	1	1	0	0	0	1	x	x
	4	Iceland	0	0	1	0	0	1	x	x
	5									
	6									
	7									
C	0	U.S.A., Australia	0	0	0	0	0	0	x	x
	1	Canada (F)	1	0	0	0	0	0	x	x
	2	Canada (E)	0	1	0	0	0	0	x	x
	3									
	4									
	5									
	6									
	7									
E	0	South Africa	0	0	0	0	0	0	x	x
	1									

Group		Country of Destination	JK Switch Set-Up							
			0	1	2	3	4	5	6	7
B	0	France	0	0	0	0	0	1	x	x
	1	Belgium	1	0	0	0	0	1	x	x
	2	Italy	0	1	0	0	0	1	x	x
	3	Spain	1	1	0	0	0	1	x	x
	4	Portugal	0	0	1	0	0	1	x	x
	5									
	6									
	7									
D	0									
	1	Germany, Austria	1	0	0	0	0	1	x	x
	2	Holland	0	1	0	0	0	1	x	x
	3	Switzerland (G)	1	1	0	0	0	1	x	x
	4	Switzerland (F)	0	0	1	0	0	1	x	x
	5	U.K.	1	0	1	0	0	0	x	x
	6									
	7									

NOTE:
(1) x: Don't care
(2) 1: ON, 0: OFF
(3) (E): English type
(F): French type
(G): German type

KEYBOARD CIRCUIT BLOCK DIAGRAM


MAIN PWB
7800 MAIN CPU
41
42
43
44
45
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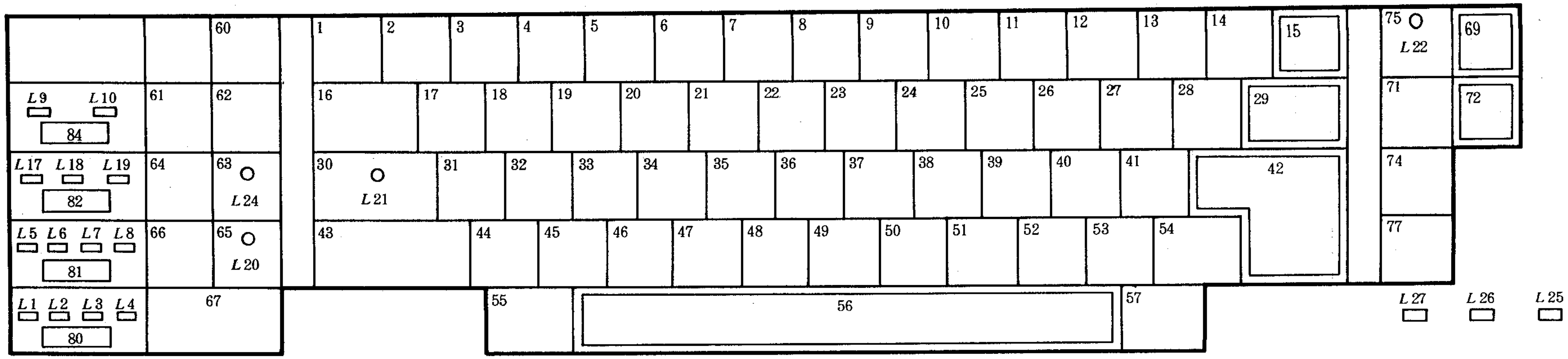
47
48
36
35
34
33
UPC339
3F (3E)
3E (3F)
14 (2)
1 (13)
13 (1)
2 (14)
8 (4)
6 (10)
10 (6)
4 (8)
SW3
JK0
JK1
JK2
JK3
JK4
JK5
JK6
JK7
RL0
RL1
RL2
RL3
RL4
RL5
RL6
RL7
1 4 6 8 10 12 60 16 71 70 80
2 19 21 23 25 27 61 30 74 73 81
17 33 35 37 39 41 62 56 77 76 82
31 45 47 49 51 53 64 57 69 79 83
3 5 7 9 11 13 63 42 72 D 84
18 20 22 24 26 14 65 29 75 43 54
32 34 36 38 40 28 66 15 78 67
44 46 48 50 52 85 68 55 S
SN74154
DECODER
13
1
2
3
4
5
6
7
8
9
10
11
X11
X0
X1
X2
X3
X4
X5
X6
X7
X8
X9
X10
SL0 23
SL1 22
SL2 21
SL3 20

Note : The pin numbers in the parenthsis are for ZX−500.

PARTS LOCATION DIAGRAMS (ZX-400)

ZX-400 48 KEY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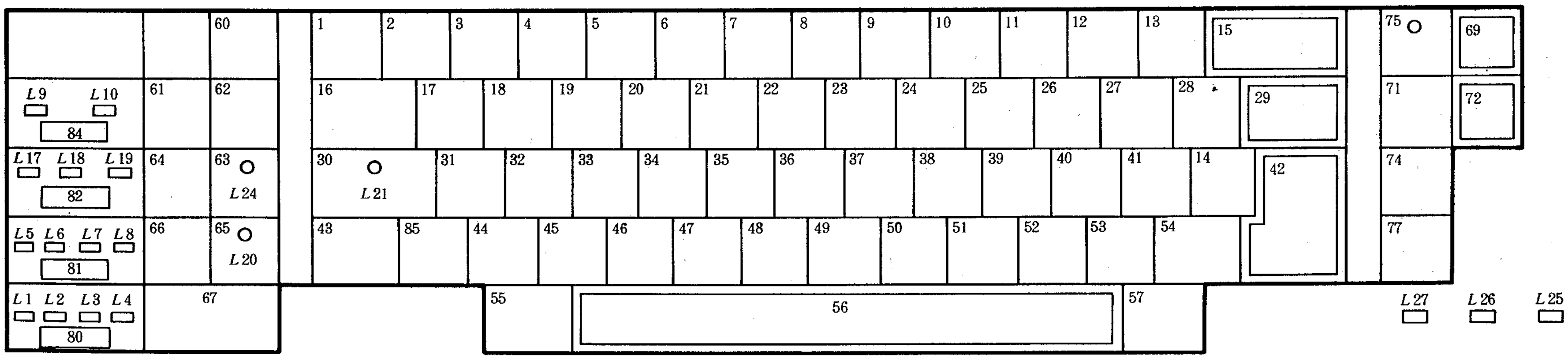
ZX-400 47 KEY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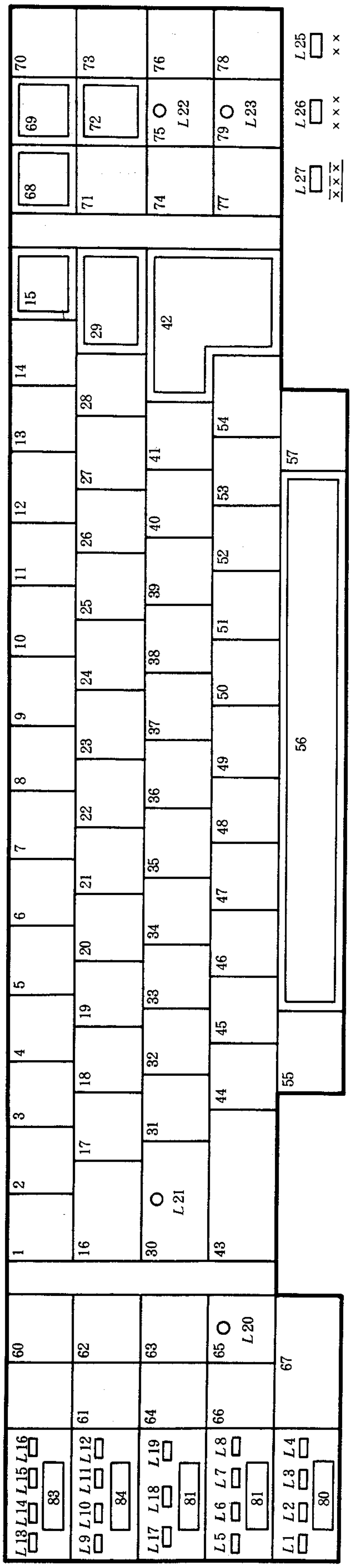
PARTS LOCATION DIAGRAMS (ZX-500)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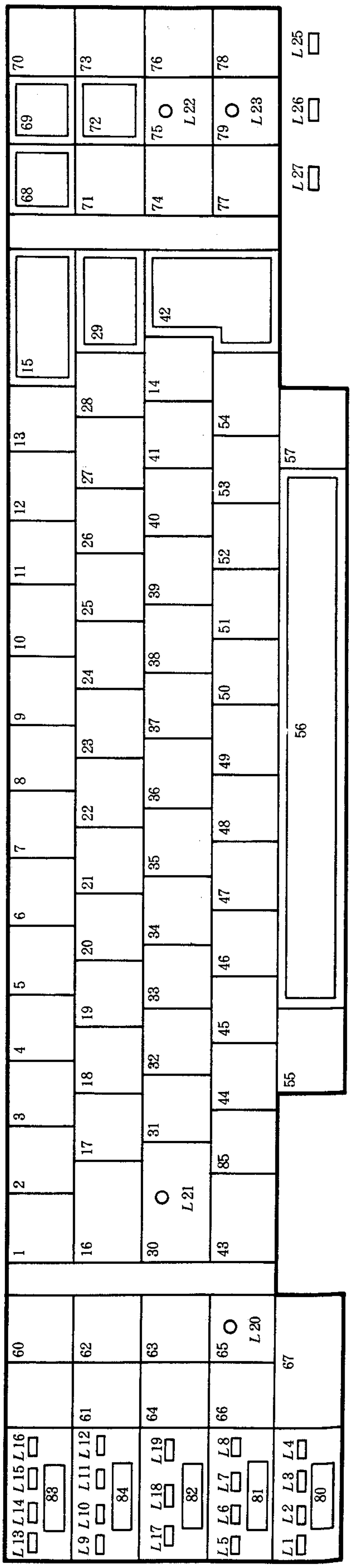
ZX-500 48 KEY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ZX-500 47 KEY

III. ADJUSTMENTS

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1. RIBBON AND CORRECTION TAPE LIFT ADJUSTMENT

There may be instances when the typed character may appear to be missing impact with the carbon ribbon. One cause may be that the ribbon is either lifting to high or not high enough. In this case follow the procedure below.

a) Print a continuous line of brackets "(" and the underscore character "–" as demonstrated below.

(_(

b) Examine the ribbon to determine the difference in the clearance "A".
c) If A is less than 1±0.3mm lower the ribbon cartridge holder in the direction of the arrow by lossening screws (a, b).
d) If A is greater than 1±0.3mm raise the ribbon cartridge by loosening screws (a, b).
e) Repeat steps a) thru d) until the clearance of "A" which is the distance from the bottom of the ribbon to the underscore character, is equal to 1±0.3mm.
f) Tighten screws (a and b).

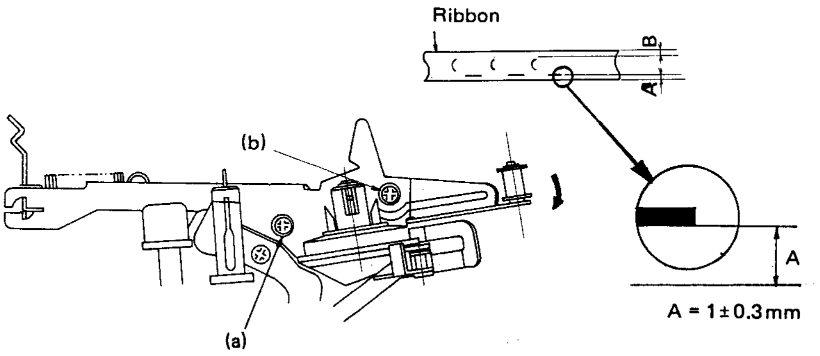

Ribbon
B
A
(b)
(a)
A
A = 1±0.3mm

Fig. A

NOTE: This adjustment is changing the relative position of the ribbon cartridge holder to the cam follower.

2. RIBBON ADVANCE ADJUSTMENT

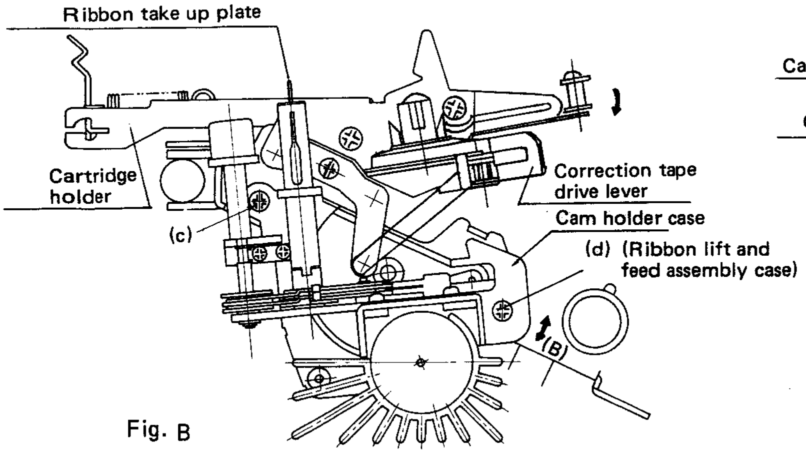

Ribbon take up plate
Cartridge holder
(c)
Correction tape drive lever
Cam holder case
(d) (Ribbon lift and feed assembly case)
(B)

Fig. B

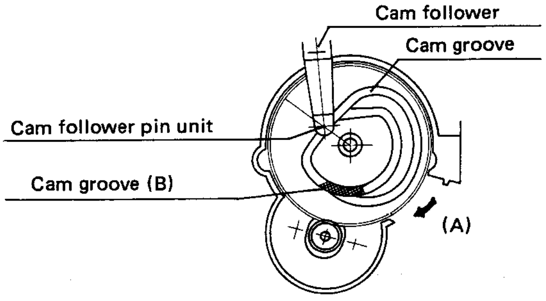

Cam follower
Cam groove
Cam follower pin unit
Cam groove (B)
(A)

Fig. C

Refer to Figs. B and C.

a) Loosen 2 screws (c) and (d) as illustrated in Fig. B and rotate the cam until the cam follower reaches the black portion of the cam as illustrated in Fig. C.
b) Following Fig. C set the ribbon cartridge onto the cartridge holder. Move and adjust the ribbon lift and feed assembly case in the direction of arrow "B" until the ribbon take up plate matches the center of the ribbon take up unit on the cartridge.

NOTE: Check the carrier base conn. board (carrier PWB) as it may come off during this adjustment.

3. TYPEWHEEL MOTOR ENCODER ALIGNMENT ADJUSTMENT

The typewheel motor encoder located on the rear of the motor assembly must be adjusted to cause the characters on the typewheel to align with the impact hammer.

Refer to the illustration below.

a) With machine power on, loosen 4 screws (A) and reposition the encoder wheel until the impact hammer is lined up with the character spoke on the typewheel.

b) Tighten screws (A).

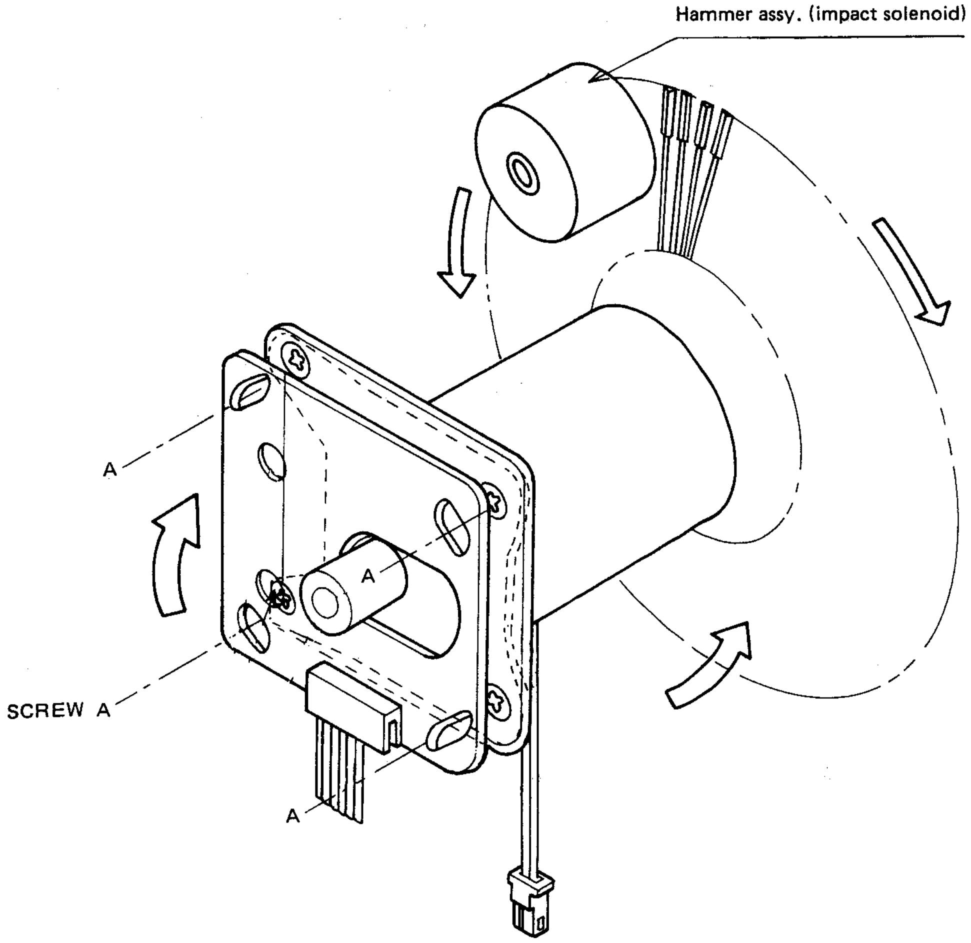


Fig. E-1

c) With power off this has to be done on several time with the other character.

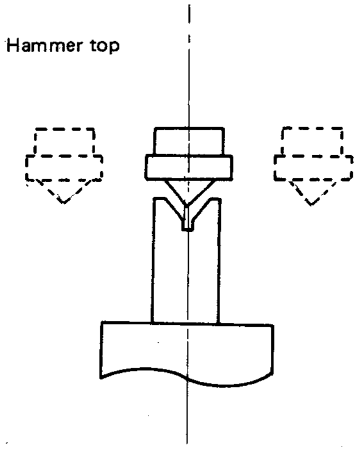


Fig. E-2

4. IMPACT SOLENOID ADJUSTMENT

If the hammer assy. is removed from the carrier, or if a new solenoid is installed the following adjustment must be performed to insure print stability.

a) Insert a sheet of paper and with the Dec. tab key, set four equally distant cloumns between the left and right margins as illustrated below.

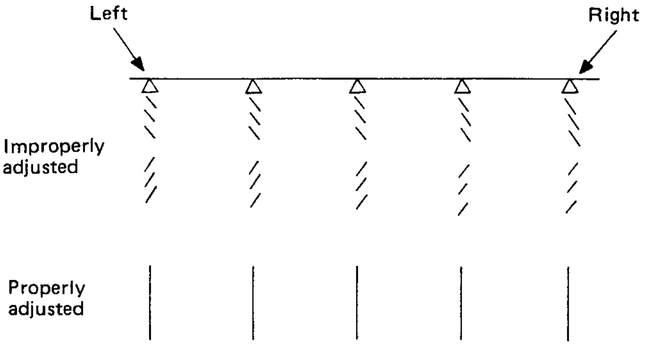

Left
Right
Improperly adjusted
Properly adjusted

Fig. E-3

See illustrations below.

b) Loosen 2 screws (b2). With a pair of pliers grasp part (B) of the solenoid and rotate either left or right so the printing samples line up as shown above. The tip of the hammer should be vertical as seen from above.

NOTE: If proper adjustment can not be attained, turn the power on and push part (A) in the direction of arrow (C) as shown in Fig. E-4 below. If the "V" groove of the hammer does not fit properly into the "V" notch on the typewheel as shown in Fig. E-6, it is because (D) and (E) of Fig. E-5) are not properly aligned. See the adjustment section on the typewheel motor to properly align these parts.

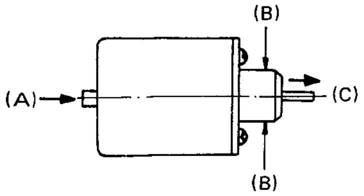


Fig. E-4

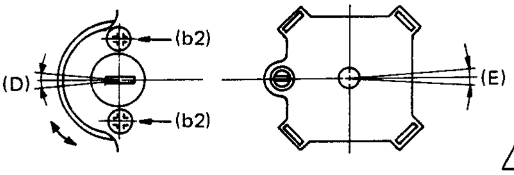


Fig. E-5

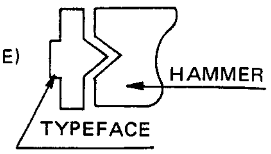

HAMMER
TYPEFACE

Fig. E-6

5. COPY CONTROL LEVER

The copy control lever, located on the right side of the front carrier rail is adjustable to three positions. The normal typing position is when the lever is all the way forward as illustrated below.
The other two settings are for varing degress of thickness in multi copies and carbon packs.

Pulling the lever in the direction of the arrow rotates slide shaft "E". Since this shaft is eccentric, movement in the direction of the arrow will cause the rear of the carrier to move down. This increases the clearance between the typewheel and the platen allowing for multiple copies. Refer to Fig. F-2.

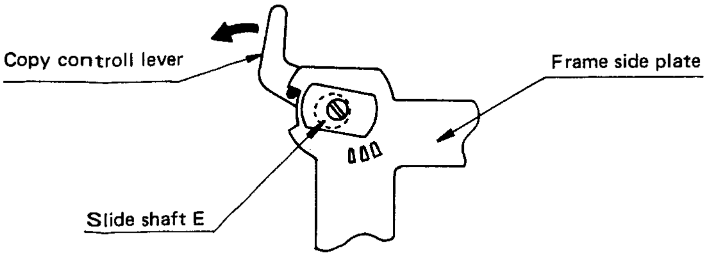

Copy controll lever
Frame side plate
Slide shaft E

Fig. F-1

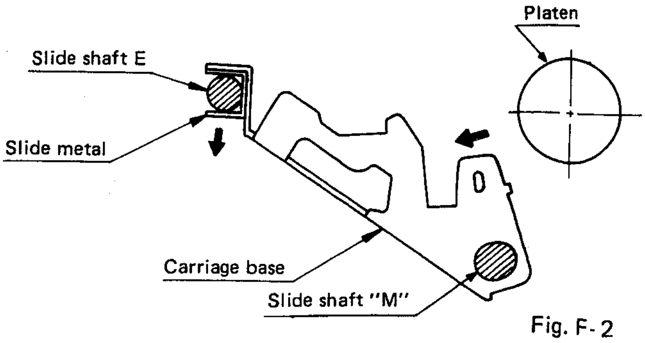

Platen
Slide shaft E
Slide metal
Carriage base
Slide shaft "M"

Fig. F-2

6. IMPACT SOLENOID TO PLATEN CLEARANCE & ADJUSTMENT OF SLIDE SHAFT "E"

The parallel gauge is a tool specially designed to adjust the parallel state of slide shaft "E" to the platen. It is also designed to set the distance between the impact hammer and platen.

As these adjustments greatly affect print quality, exercise care when performing them.

6-1. PREPARATION FOR ADJUSTMENT OF SLIDE SHAFT "E" USING THE PARALLEL GAUGE

a) Remove the 2 hammer cover screws (b4) as illustrated.

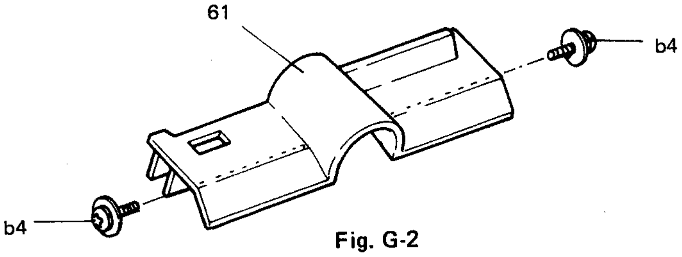
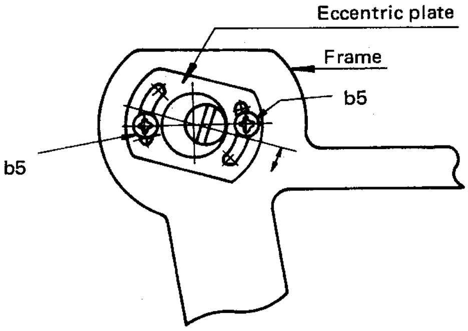


Fig. G-2

b) While moving the hammer cover towards the platen, pull up and remove.

c) Loosen the 4 screws (b5) securing the ecentric plates on the left and right sides of slide shaft "E".



d) Remove the paper pressure plate (card holder) (15) from the carrier.

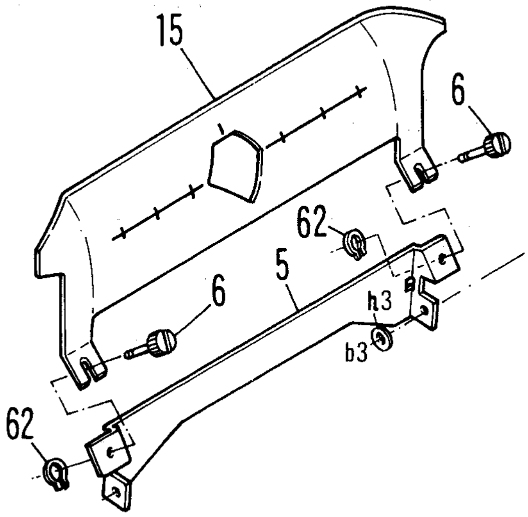


Fig. G-1

e) Position the parallel gauge as shown in Figs. L-1 and L-2, rotate the eccentric plate and set it in the position when the 14mm gap is present.

This adjustment is performed at both sides of the shaft "E".

Allowable clearance is 14mm + 0.1 – 0.

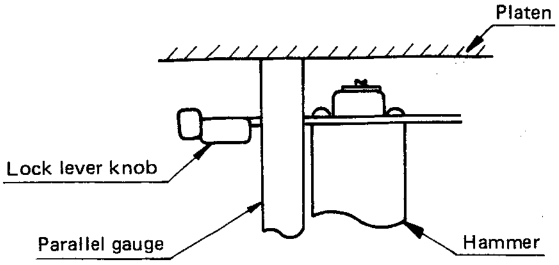


Fig. L-1 TOP VIEW

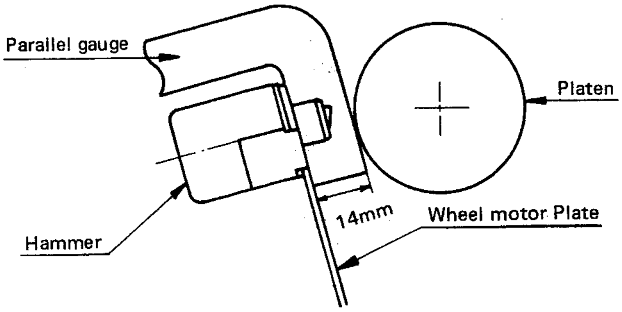


Fig. L-2 SIDE VIEW

6-2. ADJUST THE DISTANCE BETWEEN THE IMPACT HAMMER AND PLATEN

Refer to Figs. G-1 and G-2.

a) Remove the paper pressure plate (card holder) (15) attached to the carrier unit by removing 2 mounting screws (6). Fig. G-1.

b) Remove two screws (b4) and the hammer cover (61). Fig. G-2.

c) Set the copy control lever to the forward most position as illustrated on the previous page.

d) Manually move the carrier to the right and insert the 14mm thickness gauge at point (E) of Fig. G-6.

If the 14mm clearance is present between the platen and the wheel motor mounting board, point (E) Fig. G-6, the adjustment is correct. If the clearance is not correct proceed with the following steps.

Refer to Fig. G-3.

e) Loosen 2 screws (b5) and rotate the eccentric plate (G).

f) Using the parallel gauge, adjust the clearance for 14mm.

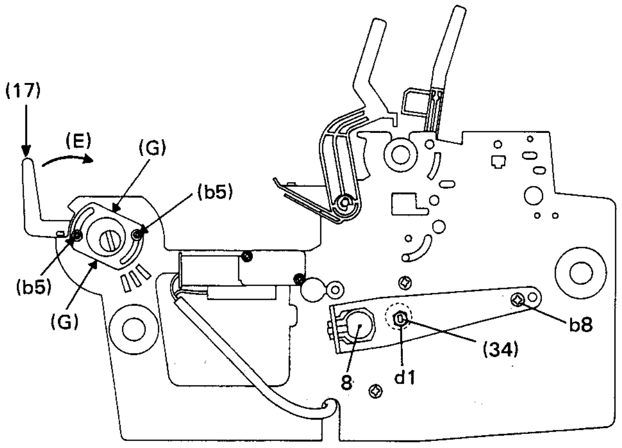
g) Tighten screws (b5).

h) Repeat the above steps for the left side of the machine.

i) Recheck right side adjust to 14mm if necessary.

j) Recheck left side adjust to 14mm if necessary.

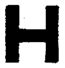
NOTE: To properly adjust the left side clearance the carrier must manually be moved to the left.



MAIN FRAME OF THE RIGHT SIDE

7. PARALLEL ADJUSTMENT

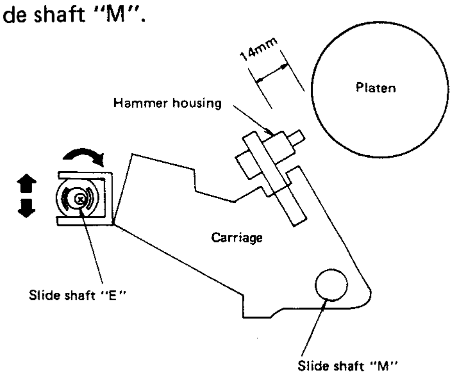
For consistency of print, it is essential that the characters on the print wheel strike the platen exactly parallel. When this happens the characters are said to be ON FEET.



ON FEET

OFF FEET

This adjustment is done by positioning slide shaft "M".


14mm
Platen
Hammer housing
Carriage
Slide shaft "E"
Slide shaft "M"

7-1. PREPARATION FOR ADJUSTMENT SLIDE SHAFT "M" USING THE PARALLEL GAUGE:

Manually move the carrier to the right side of the machine.
Refer to Fig. G-6.

a) Loosen screws (b8) on the adjusting plates, both sides of slide shaft "M".
b) Loosen the retaining nut around the adjusting screw.

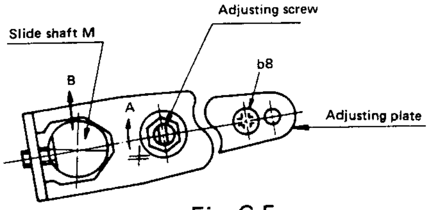

Adjusting screw
Slide shaft M
B
A
b8
Adjusting plate

Fig. G-5

c) Position the parallel gauge as shown in Fig. M-1.

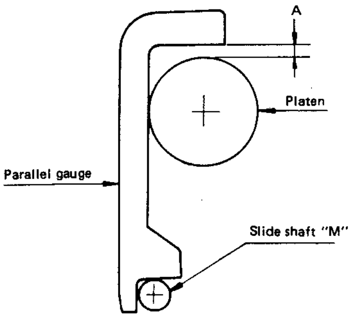

A
Platen
Parallel gauge
Slide shaft "M"

Fig. M-1

d) Rotate the adjusting screw of Fig. G-5 so the gap "A" of Fig. M-1 is 0.8mm using a thickness gauge.
e) Tighten screw (b8) and the retaining nut on the adjusting screw.
f) Proceed with the above steps for the left side of the shaft "M".

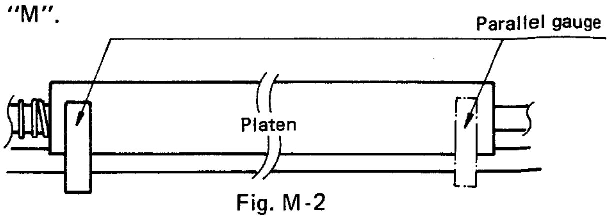

Parallel gauge
Platen

Fig. M-2

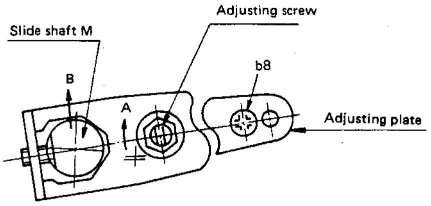
7-2. ADJUST THE PARALLEL BETWEEN THE PLATEN AND SLIDE SHAFT "M"

Before proceeding with this adjustment be sure that the adjustment for slide shaft "E" has been completed.

a) Manually move the carrier to the center of printer frame (C) over the opening for the flat cable.
Refer to Fig. G-6.

b) Loosen the adjusting screw with an open end wrench.

c) Using a screwdriver loosen screw (b8).


Adjusting screw
Slide shaft M
b8
B
A
Adjusting plate

d) Insert the parallel gauge on the right side of the dotted portion (E) in the figure below. Remember the carrier is directly over this point.

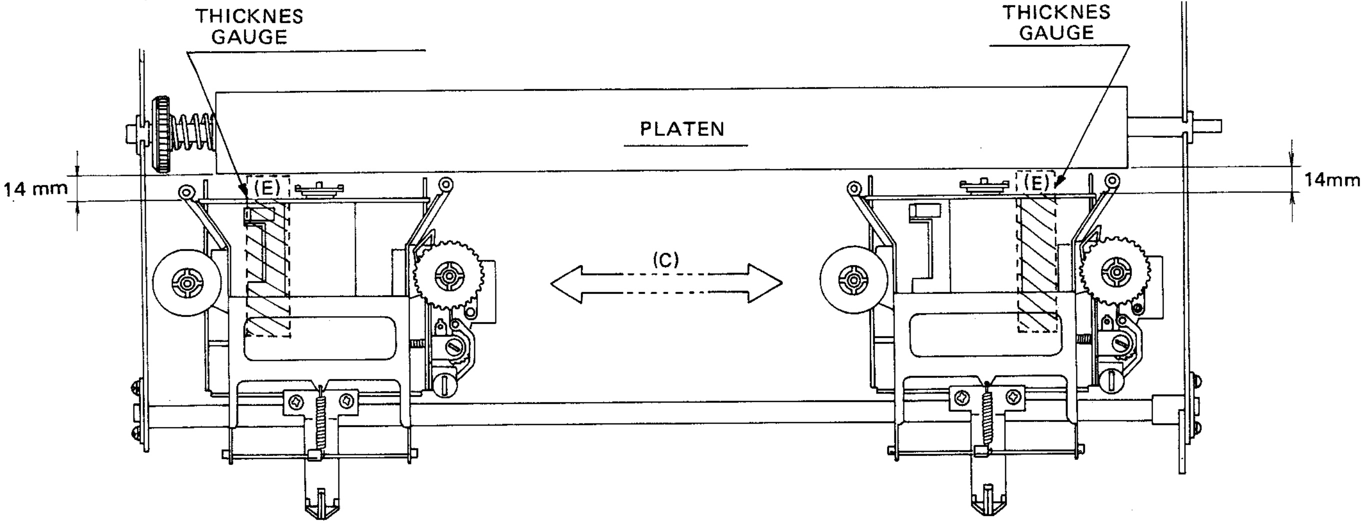

THICKNES GAUGE
THICKNES GAUGE
PLATEN
14 mm
(E)
(E)
14mm
(C)

Fig. G-6

Refer to Fig. G-3.

e) Rotate the eccentric screw (34) until the platen and slide shaft "M" are parallel.

f) Tighten the nut (d1) and screw (b8).

Repeat the sequence for the left side of the shaft, inserting the parallel gauge on the left side of the dotted portion as shown Fig. G-6.

g) Check to see that the print is consistant by printing a row of "H's" to insure an on-feet condition.

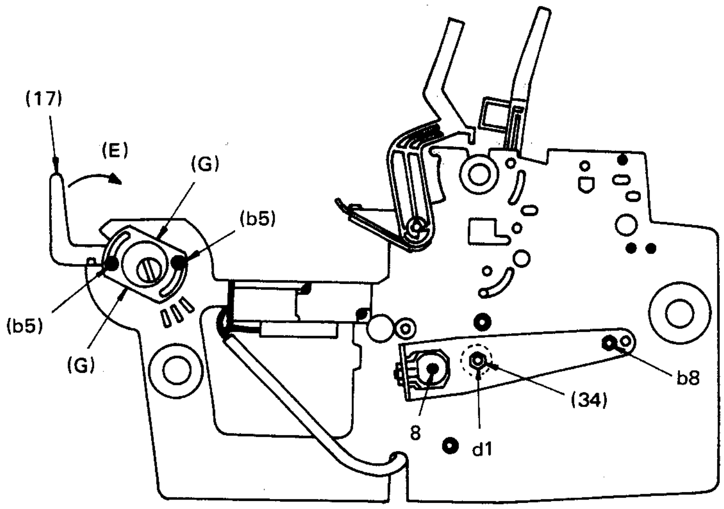

(17)
(E)
(G)
(b5)
(b5)
(G)
b8
(34)
8
d1

Fig. G-3

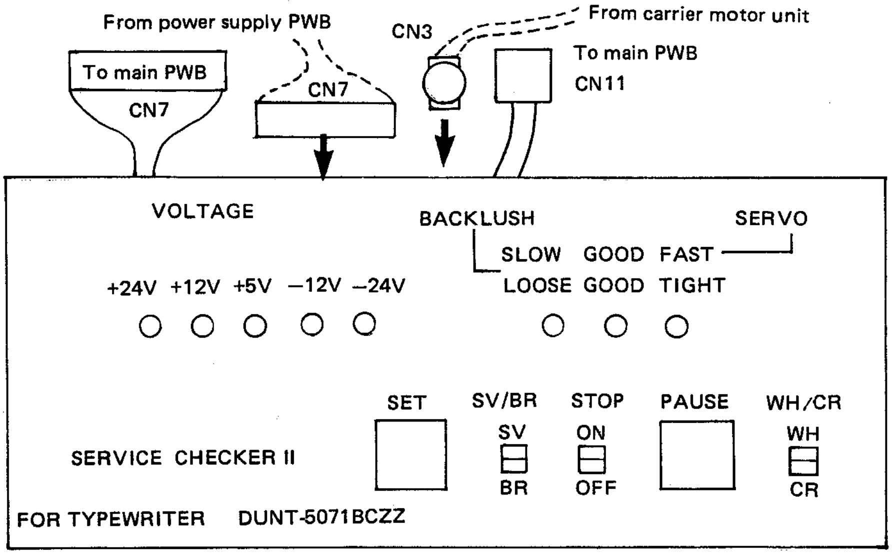
8. PREPARATION OF THE SERVO SPEED ADJUSTMENT FOR WHEEL MOTOR AND CARRIER

a) Remove the upper housing and keyboard upright refer to the service manual 1. page 1-1 and page 1-5 only for set the keyboard upright.

b) Connect between checker I. II. to the typewriter refer to the Fig. S, Fig. T, Fig. U.

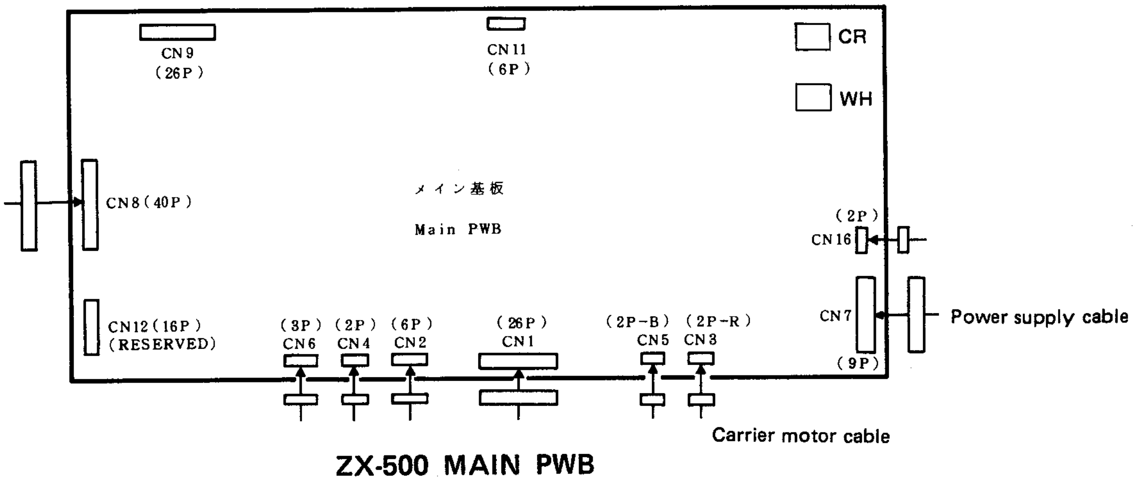
1) Checker I connect to the CN9 on the main PWB.
2) Connect the CN11 of the checker II to the CN11 of the main PWB.
3) Adjust the wheel speed by 8-1 wheel speed adjustment procedure.
4) Adjust the carrier speed by 8-2 carrier speed adjustment procedure.

Fig. S


From power supply PWB
CN3
From carrier motor unit
To main PWB
CN7
CN7
To main PWB
CN11
VOLTAGE
BACKLUSH
SERVO
SLOW GOOD FAST
LOOSE GOOD TIGHT
+24V +12V +5V −12V −24V
SET
SV/BR
SV
BR
STOP
ON
OFF
PAUSE
WH/CR
WH
CR
SERVICE CHECKER II
FOR TYPEWRITER DUNT-5071BCZZ

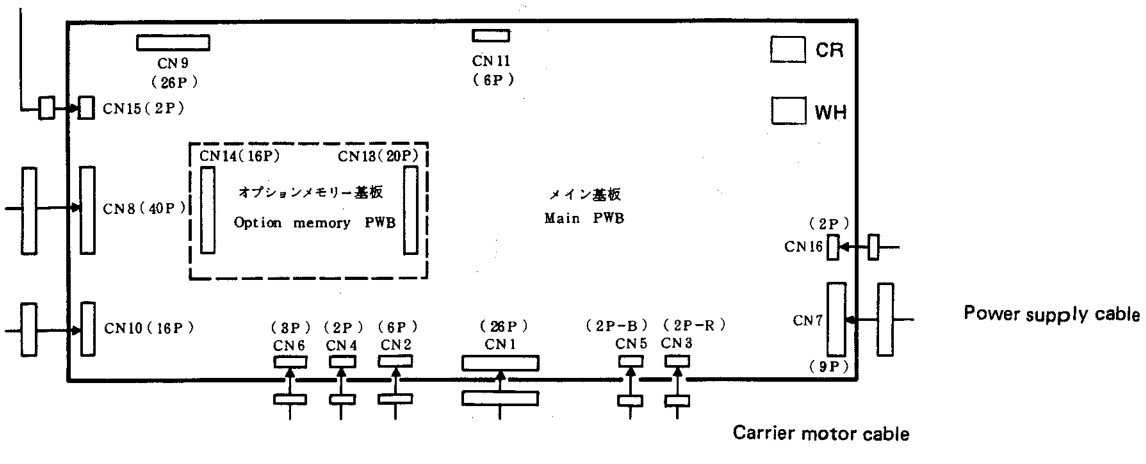
ZX-400 MAIN PWB

Fig. T


CN9
(26P)
CN11
(6P)
CR
WH
CN8(40P)
メイン基板
Main PWB
(2P)
CN16
CN12(16P)
(RESERVED)
(3P) (2P) (6P)
CN6 CN4 CN2
(26P)
CN1
(2P-B) (2P-R)
CN5 CN3
CN7
(9P)
Power supply cable
Carrier motor cable

ZX-500 MAIN PWB

Fig. U


CN9
(26P)
CN11
(6P)
CR
WH
CN15(2P)
CN14(16P)
CN13(20P)
オプションメモリー基板
Option memory PWB
CN8(40P)
メイン基板
Main PWB
(2P)
CN16
CN10(16P)
(3P) (2P) (6P)
CN6 CN4 CN2
(26P)
CN1
(2P-B) (2P-R)
CN5 CN3
CN7
(9P)
Power supply cable
Carrier motor cable

8-1. WHEEL SPEED ADJUSTMENT PROCEDURE

a) Set the WH/CR switch to WH, and SV/BR switch to SV. Set the STOP switch to OFF.
b) Set the typewiter POWER switch to ON.
c) The wheel will rotate continuously, the speed of which is indicated by the three LED indicators on the checker.
d) If the LED indicator at GOOD comes on, the wheel speed is normal.
e) If the LED at SLOW comes on, the wheel speed is lower than normal. Turn the wheel speed adjustment trimmer (WH) on the main board clockwise until wheel speed is normal.
f) If the LED at FAST comes on, the wheel speed is higher than normal. In this case, turn the same adjustment (WH) counterclockwise until wheel speed is normal.
g) Press the PAUSE pushbutton. The wheel will now rotate in the reverse direction. Adjust the wheel speed in the reverse direction in a similar manner.
h) To stop the wheel, set the STOP switch to ON. If the STOP switch is set to OFF again, the wheel will rotate in the reverse direction.
i) Set the typewriter POWER switch to OFF.

8-2. CARRIER SPEED ADJUSTMENT PROCEDURE

a) Set the WH/CR switch to CR and SV/BR switch to SV. Set the STOP switch to OFF.
b) Set the typewriter POWER switch to ON.
c) The carrier will move in both directions while its speed is indicated by one of the three LED indicators.
d) If the LED indicator at GOOD comes on, the carrier speed is normal.
e) If the LED at SLOW comes on, carrier speed is lower than normal. Turn the carrier speed adjustment trimmer (CR) on the main board until carrier speed is normal.
f) If the LED at FAST comes on, then the carrier speed is higher than normal. In this case, turn the same adjustment (CR) counterclockwise until carrier speed is normal.
g) To stop the carrier, set the STOP switch to ON. If the STOP switch is set to OFF again, the carrier will start moving again.
h) Set the typewriter POWER switch to OFF.
i) Disconnect Checker I and Checker II from the main board. After the wheel speed adjustment, the wheel is not at its home position. Set the typewriter POWER switch to ON again, and initialize the wheel to its home position before turning the typewriter off again.

9. POWER SUPPLY CHECK

Preparation should be done by following manner.

a) Remove the upper housing and keyboard upright refer to the service manual 1 page 1-1 and page 1-5 only for set the keyboard upright.
   Refer Fig. S, Fig. T, Fig. U.
b) Pull out CN7 on the main PWB's, then it connect to the checker II.
c) Connet Checker II's CN7 to on the main PWB CN7.

9-1. CHECKING THE POWER SUPPLY PROCEDURE

a) Set the typewriter POWER switch to ON.
b) Verify that the five LED indicators light up at an even brightness.
   If any of the indicator remains off or has uneven brightness, it indicates a defective power line.
c) If this occurs, temporarily turn off the typewriter, then disconnect the checker's power cable from the main board.
d) Turn the typewriter on again.
e) If the fault persists, it is most probable that the power unit is malfunctioning. If the trouble disappears by disconnecting the cable, then the main board is malfunctioning.

10. CARRIAGE MOTOR GEAR MESH (BACK LASH) ADJUSTMENT

The backlash adjustment adjusts the meshing of the drawband drum gear (A) and the motor gear (B). This adjustment is critical to good correction. Since precise adjustments are necessary.

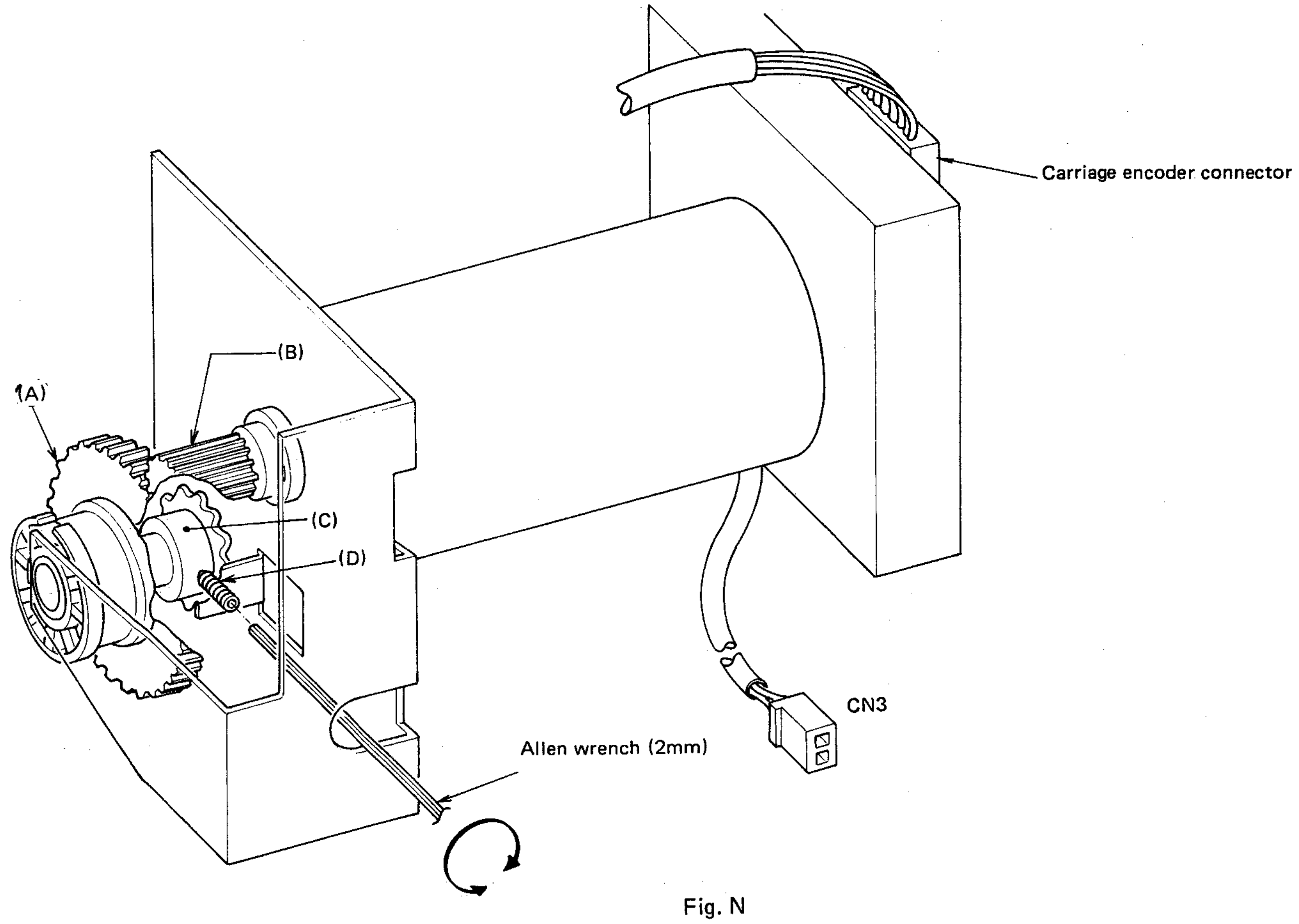


Fig. N

10-1 PREPARATION FOR BACKLASH ALIGNMENT

a) Upper housing removal refer to the service manual 1 page 1-1.
b) Keyboard assembly removal refer to the service manual 1 page 1-5 only for set the keyboard upright.
c) Removal printer main frame from bottom housing refer to the service manual 1 page 1-5.
d) Removal carrier motor assembly refer to the service manual 1 page 1-13 only for remove carrier motor assembly. Refer to the Fig. S, Fig. T, Fig. U.
e) Disconnect the power supply cable (CN-7) and the carrier motor cable (CN-3) from the main PWB.
f) Connect the carrier motor cable (CN-3) and the power supply cables (CN-7) to the checker II.
g) Remove the carrier encorder connector from the carrier motor assembly refer to the Fig. N as above.

10-2. BACKLASH ALIGNMENT

a) Set th SV/BR switch to BR.
b) Loosen the set screw on the carrier motor assembly with a hex wrench key, and turn the alignment know clockwise as viewed from the driving pulley until the engagement of the driving pulley with the motor gear is minimized.
c) Set the typewriter POWER switch to ON.
d) When the carrier motor rotation is stabilized, press the SET pushbutton, and verify that the LOOSE indicator comes on.
e) Slowly turn the alignment knob counterclockwise to increase the engagement of the driving pulley with the motor gear.
f) The GOOD indicator lamp will come on when the engagement falls into the normal range.
g) Further increase the engagement until the HIGH indicator lamp comes on.
h) Now reduce the engagement to around the center of the GOOD range, then tighten the set screw at that point.
i) After tightening the set screw, make sure that the GOOD indicator lamp is lit.
j) Set the typewriter POWER switch to OFF.
k) Disconnect the motor and power cables from the checker, then connect the power cable to the mainboard connector.
l) Tighten the Allen screw refer to Fig. N.
m) Install the carrier motor unit into the typewriter mainframe refer to the service manual 1 page 1-12, 1-13.

11. WIRE DRAWBAND TENSION ADJUSTMENT

Proceed with this adjustment after completing the adjustment for the carrier motor backlash.
Refer to the figure below (Fig. P);

a) Be sure the carrier is positioned at the center of the drawband travel as illustrated.
b) Hook the tension gauge to the bottom portion of the center of the wire.
c) With the gauge reading 300 grams, check to see that the drawband is deflected 4 to 5mm (E).
d) If its not within this range, loosen nut (12) and turn part (F) with a screwdriver to adjust the wire tension as described in c) above.

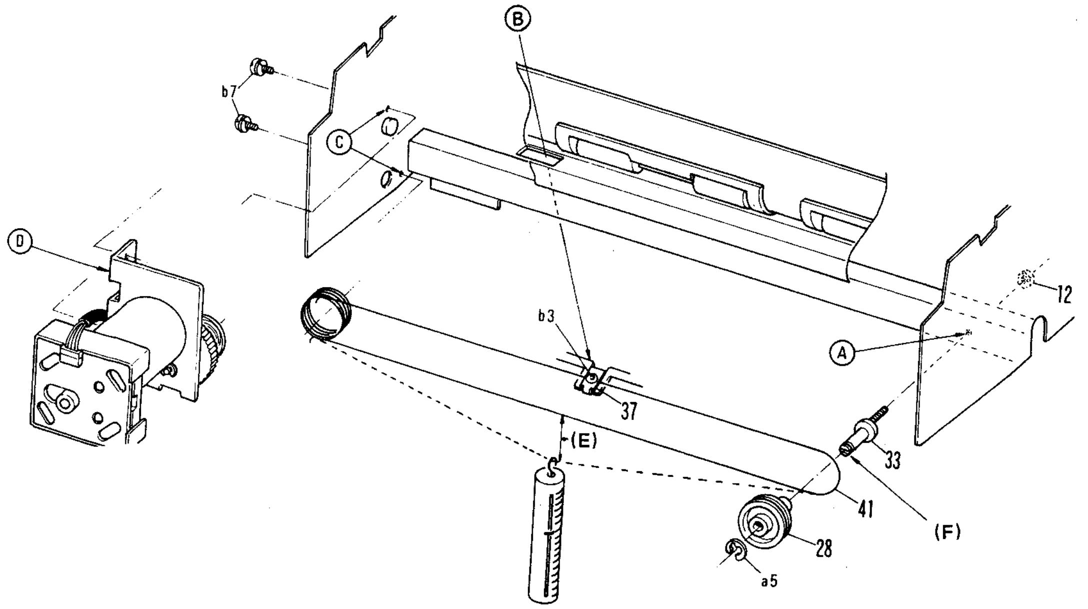


Fig. P

12. PAPER FEED MECHANISM ADJUSTMENT

When installing a new motor, check the distance from the paper feed gear shaft to the outer teeth of the motor for a distance of 26.0 +0.15 –0.0mm. Measure the distance from the shaft to the tip of the teeth as illustrated.
Insert the paper feed gear and insure it rotates smoothly.

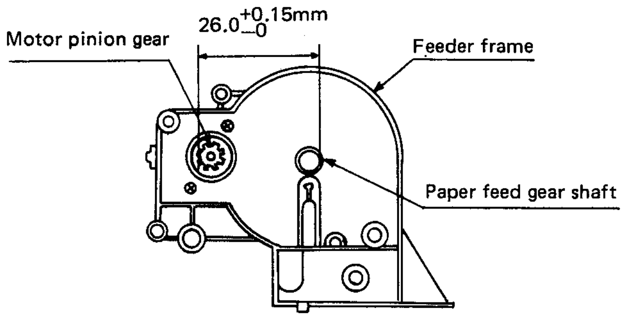


Fig. Q

13. ENGAGEMENT ADJUSTMENT OF THE RATCHET TO THE RATCHET WHEEL

Refer to the figure below (Fig. R-1);
If the ratchet does not properly engage the ratchet wheel, it will affect paper feed and correcting errors up the page in correction memory as the teeth won't feed the proper amount to cause the print wheel to line up perfectly with typed text.

a) Rotate the ratchet wheel until the ratchet is at it's lowest point. Check to see if the ratchet is correctly engaged between the teeth of the ratchet wheel.

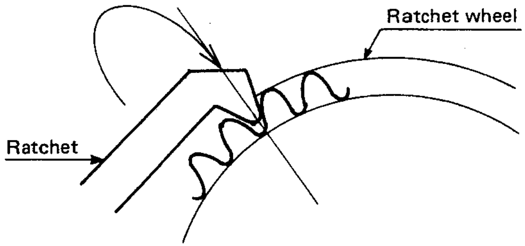


Fig. R-1

b) When the engaged position is not correct, loosen 2 screws as shown in the illustration below. These screws fasten the paper feed assembly to the main printer frame on the left side.
c) Insert a screwdriver into the adjustment slot and turn in the direction that will cause the ratchet to engage between the teeth of the ratchet wheel.
d) After adjusting, tighten the 2 screws.

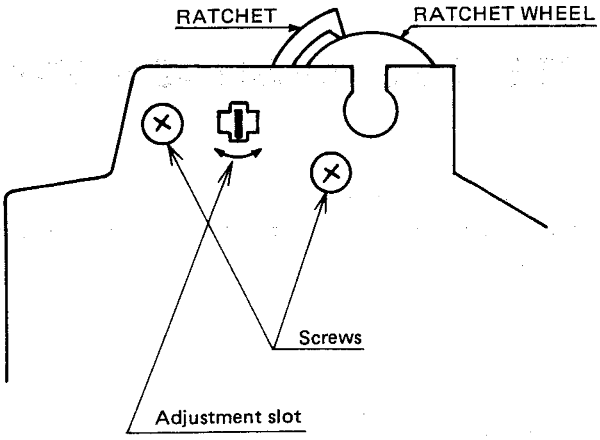


Fig. R-2

IV. PARTS GUIDE

Contents

20. プリンタメインフレーム部　PRINTER MAIN FRAME . . . . . 4−1
21. プリンタキャリッジベース部　PRINTER CARRIAGE BASE . . . . . 4−3
22. 締結部品　SCREW, WASHER, etc . . . . . 4−4
23. 下ハウジング部　LOWER HOUSING . . . . . 4−6
24. 上ハウジング部　UPPER HOUSING . . . . . 4−8
25. フルキーボード部　FULLKEY KEYBOARD (ZX-400) . . . . . 4−10
26. フルキーボード部　FULLKEY KEYBOARD (ZX-500) . . . . . 4−12
27. 梱包材,付属品　PACKING MATERIAL, ACCESARIES (ZX-400) . . . . . 4−14
28. 梱包材,付属品　PACKING MATERIAL, ACCESARIES (ZX-500) . . . . . 4−16

GUIDE FOR KEYBOARD UNIT/MAIN PWB UNIT/CONSUMABLE ITEMS

1. Keyboard unit and Main PWB unit supply

1-1. Keyboard unit

The 4 keyboards below are not equipped with key tops. If any key tops are needed, order them according to the language by referring to the Electronic Typewriters, ZX-400/ZX-500 Service Manual No. 3 (Keyboard Parts Guide).

PAGE	NO.	PARTS CODE	MODEL
4-10	B	00PZX400KBD47	ZX-400
4-10	B	00PZX400KBD48	ZX-400
4-12	C	00PZX500KBD47	ZX-500
4-12	C	00PZX500KBD48	ZX-500

1-2. Main PWB unit

The main PWB unit, supplied as a service part, is not equipped with ROM for the key table (ROM 2 for the ZX-400 and ROM 4 for the ZX-500). To make the unit complete, therefore, it is necessary to order the main PWB and the key table ROM separately. The ROM parts codes are listed on the pages shown below in Section IV of the Electronic Typewriter Service Manual No. 2.

PAGE	NO.	PARTS CODE	DESCRIPTION	MODEL
4-2 (4-4)	112 (109)	VHIM2732A06-1	ROM 4, Wheel No. 3	ZX-400/500
		VHIM2732A07-1	ROM 4, Wheel No. 4	ZX-400/500
		VHIM2732A08-1	ROM 4, Wheel No. 5	ZX-400/500
		VHIM2732A09-1	ROM 4, Wheel No. 6	ZX-400/500

(   ) represents the ZX-500.

(Ordering Example)
When a complete main PWB for the ZX-500 (USA) is required, the following No. 1 and No. 2 parts should be designated for assembly by the orderer.

NO.	DESCRIPTION	PARTS CODE	NOTE
1	Main PWB	DUNTK5814BCZZ	Main PWB unit w/o ROM 4
2	Key table ROM (ROM 4)	VHIM2732A08-1	Printwheel No. 005 (Wheel No. 5)

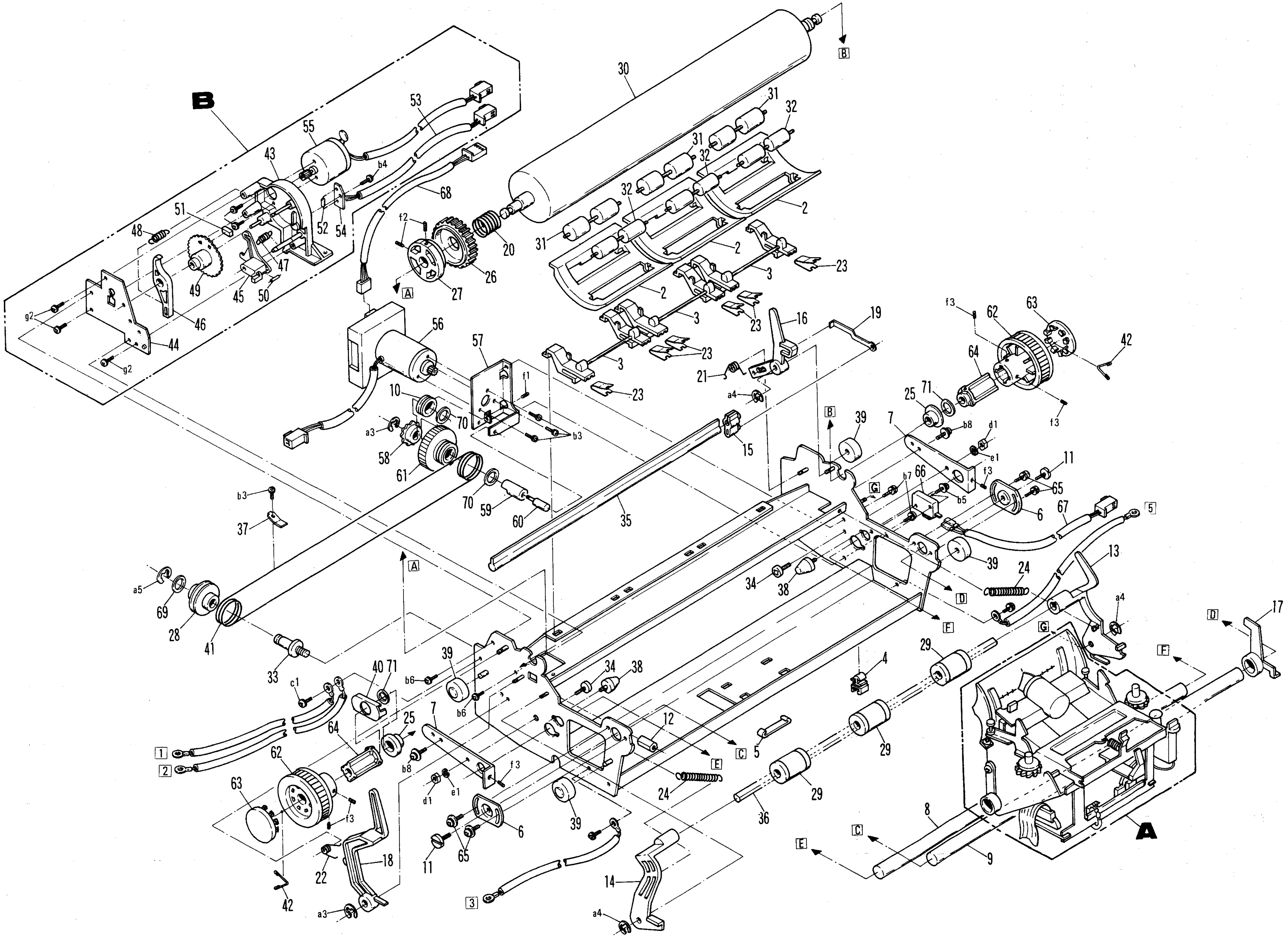
2. Consumable items

The parts codes for the print ribbon, correction tape and printwheel are not included in this parts guide since they are handled by the sales division.

20 プリンタ メイン フレーム部 (PRINTER MAIN FRAME)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
A	CDAiH5010BC01	UA	CA	N	E	キヤレツジベースクミヒン	Carriage base unit
B	CMŌTN5011BC01	GU	BD	N	E	フイードモータークミヒン	Paperfeed motor unit
1	LBNDJ0020FCZZ	DB	AA		C	スナップバンド	Wire fixing band
2	LHLDR5010BCZZ	DJ	AE	N	C	ローラーホルダーA	Roller holder A
3	LHLDR5011BCZZ	DH	AD	N	C	ローラーホルダーB	Roller holder B
4	LHLDW2047SCZZ	DB	AA		C	WS−1NS	Holder
5	LHLDW5019BCZZ			N	C	フラットケーブルクリップ	Clip,Flat cable
6	LPLTM5019BCZZ	DE	AC	N	C	エキセン プレート	Plate,eccentric
7	LPLTM5020BCZZ	DJ	AE	N	C	チヨウセイ プレート	Plate,adjustment
8	LRALM5010BCZZ	FL	AV	N	C	スライドシヤフト M	Slide shaft M
9	LRALM5011BCZZ	FK	AU	N	C	スライドシヤフト E	Slide shaft E
10	PRNGP5012BCZZ	DD	AC	N	C	チョウセイノブリング	Ring,adjusting knob
11	LX−BZ5010BCZZ	DE	AC	N	C	ビス	Screw
12	LX−BZ5011BCZZ	DG	AD	N	C	ビス	Screw
13	MLEVP5010BCZZ	DH	AD	N	C	ベールレバーR	Lever R,paper bail
14	MLEVP5011BCZZ	DG	AD	N	C	ベールレバーL	Lever L,paper bail
15	MLEVP5014BCZZ	DC	AB	N	C	トルクバーエンド	Torque bar end
16	MLEVP5015BCZZ	DE	AC	N	C	リリースレバー	Lever, paper release
17	MLEVP5016BCZZ	DD	AC	N	C	チヨウセイレバー	Lever,adjustment
18	MLEVP5018BCZZ	DE	AC	N	C	フリーレバー	Lever,paper free
19	MLNKM5010BCZZ	DD	AC	N	C	リリース リンク	Release link
20	MSPRC5034BCZZ	DB	AB	N	C	クラツチ スプリング	Spring,clutch
21	MSPRD5038BCZZ	DB	AB	N	C	キツク バネ R	Spring,R
22	MSPRD5039BCZZ	DB	AB	N	C	キツク バネ F	Spring,F
23	MSPRP5037BCZZ	DA	AA	N	C	Fローラ スプリング	Spring,F roller
24	MSPRT5035BCZZ	DB	AB	N	C	ベールレバーSP	Spring,bail lever
25	NBRGF5026BCZZ	DG	AD	N	C	プラテンジクウケ	Bearing platen
26	NGERZ5050BCZZ	DE	AC	N	C	ラチエツトホイール	Gear,ratchet wheel
27	NGERZ5051BCZZ	DF	AD	N	C	ノブクラツチ	Gear,knob clutch
28	CPLYB5021BC01	EM	AP	N	C	アイドルプーリ	Pulley,idle
29	NRŌLP5021BCZZ	DN	AF	N	C	ベールローラー	Roller,paper bail
30	NRŌLR5020BCZZ	GZ	BE	N	C	プラテン	Platen
31	NRŌLR5023BCZZ	DZ	AK	N	C	フイードローラーA	Roller A,paper feed
32	NRŌLR5024BCZZ	DX	AK	N	C	フイードローラーB	Roller B,paper feed
33	NSFTA5041BCZZ	DT	AG	N	C	アイドループーリシン	Shaft,idller pulley
34	PAJS−5010BCZZ	DN	AF	N	C	アジヤストネジ	Screw
35	PBARM5010BCZZ	EX	AR	N	C	トルク バー	Torque bar
36	PBARM5011BCZZ	EW	AR	N	C	ペーパー バー	Paper bar
37	PCLi−5010BCZZ	DD	AC	N	C	ワイヤークリツパー	Wire clipper
38	PDMPZ5010BCZZ	DB	AB	N	C	ストツパー	Stopper
39	PGUMM5011BCZZ	DC	AB	N	C	ボウシン ゴム	Rubber
40	PRNGP5010BCZZ	DE	AC	N	C	クラツチリング	Clutch ring
41	PWiR−5010BCZZ	EA	AK	N	C	ワイヤーロープ	Wire rope
42	MSPRK5060BCZZ	DC	AB	N	C	ノブスプリング	Spring,platen knob
43	LFRM−5010BCZZ	DY	AK	N	C	フイーダーフレーム	Housing,paper feed motor
44	LPLTM5021BCZZ	DH	AE	N	C	フイダープレート	Plate,paper feed motor
45	MLEVP5012BCZZ	DE	AC	N	C	ラチエツトA	Ratchet A
46	MLEVP5013BCZZ	DF	AD	N	C	ラチエツトB	Ratchet B
47	MSPRT5048BCZZ	DB	AB	N	C	デイテントスプリング	Spring,detent
48	MSPRT5049BCZZ	DB	AB	N	C	ラチェットスプリング	Spring,ratchet
49	NGERH5055BCZZ	DE	AC	N	C	PFギヤー 1/6	Gear,paper feed
50	NRŌLM5025BCZZ	DD	AC	N	C	デイテントローラー	Roller,detent
51	PMAGE5010BCZZ	DF	AD	N	C	マグネツト	Magnet
52	QCNTF5010BCZZ	DL	AE	N	C	リードセツテン	Contact (switch)
53	QCNW−5078BCZZ	DN	AF	N	C	2P.PFリードSW	Cable,2P
54	QPWBE5011BCZZ	DB	AB	N	C	SW キバン	Switch PWB w/o part
55	RMŌTN5011BCZZ	FS	AW	N	B	ペーパーフイードモータ	Motor,paper feed
56	CMŌTZ5012BC01	MK	BQ	N	E	キャレッジモータクミヒン	Carriage motor ass'y
57	LFRM−5012BCZZ	DV	AH	N	C	モーターフレーム	Frame,carriage motor
58	JKNBZ5010BCZZ	DC	AB	N	C	チヨウセイノブ	Adjustment knob
59	NSFTA5042BCZZ	DP	AF	N	C	ドライブプーリーシャフトE	ShaftE,drive pulley
60	NSFTA5043BCZZ	DC	AB	N	C	ドライブプーリーシャフトF	Shaft F,drive pulley
61	CPLYM5020BC01	ES	AQ	N	C	ドライブプーリ	Drive pulley
62	JKNBZ5011BCZZ	DK	AE	N	C	ノブ	Platen knob
63	PCAPZ5011BCZZ	DD	AC	N	C	ノブキヤツプ	Cap,platen knob
64	LHLDZ5015BCZZ	DN	AF	N	C	ノブスリーブ	Knob sleeve
66	QSW−M5013BCZZ	EC	AL	N	B	マイクロスイッチ	Micro switch
67	QCNW−5077BCZZ	DN	AF	N	C	3PLF−SWヨウ	Cable,auto−insert switch
68	QCNW−5076BCZZ	EP	AP	N	C	6PCRエンコーダー	Cable,carriage encoder
69	PSPAP5018BCZZ			N	C	スペーサー	Spacer
70	PSPAP5019BCZZ			N	C	スペーサー	Spacer
71	PSPAP5020BCZZ			N	C	スペーサー	Spacer

20 プリンタ メイン フレーム部（PRINTER MAIN FRAME）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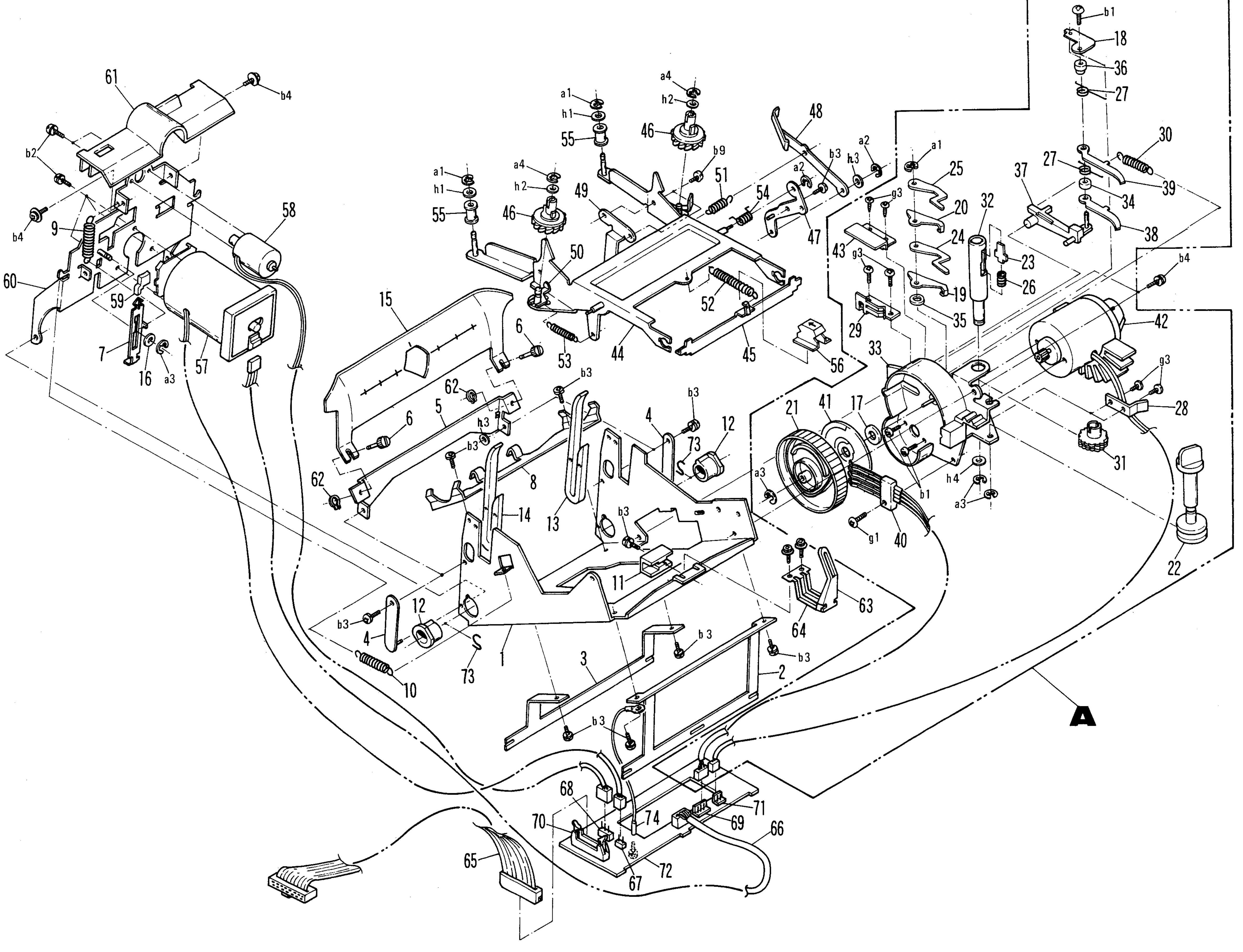
21 プリンタ キャリッジ ベース部 (PRINTER CARRIAGE BASE)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
A	CCASZ5010BC01	HV	BK	N	E	リボンマキトリクミヒン	Ribbon feed motor ass'y
1	LDAiH5010BCZZ	ET	AQ	N	C	キャレッジベース	Carriage base
2	LHLDZ5017BCZZ	DN	AF	N	C	キャレキバンANGA	Holder A,carriage PWB
3	LHLDZ5018BCZZ	DE	AC	N	C	キヤレキバンANGB	Holder B,carriage PWB
4	LSTYM5010BCZZ	DF	AD	N	C	シテンバン	Plate,support
5	LSTYM5012BCZZ	DJ	AE	N	C	ペーパオサエトリツ	Plate,paper pressure
6	LX-BZ5012BCZZ	DF	AD	N	C	ビス	Screw
7	MLEVF5026BCZZ	DF	AD	N	C	ロツクレバー	Lock lever
8	MSPRP5050BCZZ	DN	AF	N	C	カセツトオサエ	Spring,cassette pressure
9	MSPRT5051BCZZ	DB	AB	N	C	ロツクレバーSPR	Spring,lock lever
10	MSPRT5054BCZZ	DB	AB	N	C	ホイルーMトリツケSP	Spring,wheel motor
11	NBRGF5020BCZZ	DW	AH	N	C	スライドメタル	Bearing,slide metal
12	NBRGZ5021BCZZ	DV	AH	N	C	キヤリツジジクウケ	Bearing,carriage shaft
13	PGiDM5011BCZZ	DE	AC	N	C	ホイールカートリツシR	Guide R,wheel cartridge
14	PGiDM5012BCZZ	DE	AC	N	C	ホイールカートリツシL	Guide L,wheel cartridge
15	PGiDM5014BCZZ	DU	AG	N	C	ペーパオサエイタ	Guide,paper pressure
16	PSPAZ5016BCZZ	DA	AA	N	C	ヒラワツシヤ	Spacer
17	LBSHZ5010BCZZ	DC	AB	N	C	コテイブツシユ	Bushing
18	LSTPF5012BCZZ	DC	AC	N	C	ツメ トメイタ	Stopper
19	LSTPF5013BCZZ	DF	AD	N	C	10/12ギヤクトメ	Stopper
20	LSTPF5015BCZZ	DF	AD	N	C	PSヨウギヤクトメ	Stopper
21	MCAMP5020BCZZ	DH	AE	N	C	リボンシフトカム	Cam follower gear
22	MCAMP5021BCZZ	DD	AC	N	C	リボンオクリキリカエ	Cam,ribbon feed rate change
23	MLEVF5023BCZZ	DD	AC	N	C	リボンマキトリイタ	Lever,ribbon feed
24	MLEVF5027BCZZ	DF	AD	N	C	10/12カイジヨ	Lever,10/12 release
25	MLEVF5028BCZZ	DF	AD	N	C	PSカイジヨレバー	Lever,PS release
26	MSPRC5044BCZZ	DA	AA	N	C	リボンマキトリアツシ	Spring,ribbon feed
27	MSPRD5056BCZZ	DA	AA	N	C	ツメヨウ スプリング	Spring,pawl
28	MSPRP5053BCZZ	DB	AB	N	C	リボンデイテントスプリング	Spring,ribbon detent
29	MSPRP5055BCZZ	DE	AC	N	C	ギャクテンスプリング	Spring,reverse
30	MSPRT5045BCZZ	DB	AB	N	C	リボンマキトリーSP	Spring,ribbon feed
31	NGERZ5053BCZZ	DC	AB	N	C	マキトリツメグルマ	Gear
32	NSFTP5040BCZZ	DD	AC	N	C	リボンマキトリジク	Shaft,ribbon feed
33	PCASZ5010BCZZ	EA	AL	N	C	カムホルダーケース	Case,cam holder
34	PSPAP5011BCZZ	DA	AA	N	C	ツメ スペーサー	Spacer
35	PSPAP5012BCZZ	DA	AA	N	C	ギヤクテントメ A	Spacer
36	PSPAP5014BCZZ	DB	AB	N	C	ツメ スペーサーB	Pawl spacer B
37	PTME-5010BCZZ	DY	AK	N	C	テープマキトリツメ	Pawl,ribbon feed
38	PTME-5011BCZZ	DF	AD	N	C	リボン10/12Z/	Pawl,10/12
39	PTME-5013BCZZ	DF	AD	N	C	リボンPSヨウ ツメ	Pawl,PS
40	QBRSZ5010BCZZ	EY	AR	N	C	ブラシセツテン	Brush contact
41	QPWBE5015BCZZ	ED	AM	N	C	スリツプリング	Slip ring
42	CMÖTN5013BC01	FV	AX	N	B	リボンフィードモータクミヒン	Motor,ribbon feed
43	PCÖVP5019BCZZ	DD	AC	N	C	ツメカバー	Cover,pawl
44	LDAiH5011BCZZ	EZ	AR	N	C	カートリツジホルダ	Holder,ribbon cassette
45	LFiX-5010BCZZ	DL	AE	N	C	カートリツジオサエ	Plate,cassette pressure
46	LHLDZ5012BCZZ	DD	AC	N	C	テープリールダイ	Gear,correction tape
47	LPLTM5018BCZZ	DF	AD	N	C	カートリツジシテンイ	Plate,cartridge holder support
48	MLEVF5020BCZZ	DF	AD	N	C	リールダイクドウ	Lever,reel disk drive
49	MLEVF5021BCZZ	DR	AF	N	C	カートリツジカム	Lever
50	MLEVF5022BCZZ	DF	AD	N	C	リフトオフテープテンションレバー	Lever,lift off tension
51	MSPRT5040BCZZ	DA	AA	N	C	リールダイクドウスプリング	Spring
52	MSPRT5041BCZZ	DB	AB	N	C	カートリッジオサエイタスプリング	Spring,cartridge pressure
53	MSPRT5042BCZZ	DB	AB	N	C	コレクションテープスプリング	Spring,correction tape tension
54	MSPRT5043BCZZ	DB	AB	N	C	カートリッジフックスプリング	Spring
55	NRÖLP5022BCZZ	DB	AB	N	C	ガイドローラー	Guide roller
56	PCAPZ5012BCZZ	DD	AC	N	C	リボン オサエCAP	Cap,ribbon pressure
57	CMÖTZ5010BC01	MJ	BQ	N	E	ホイールモータークミヒン	Wheel motor ass'y
58	DUNTM5055BCZZ	HP	BH	N	E	ハンマークミヒン	Hummer ass'y
59	JKNBZ5012BCZZ	DB	AB	N	C	ロツクレバーツマミ	Knob,lock lever
60	LPLTM5015BCZZ	DZ	AK	N	C	ホイールモータートリツケイタ	Plate,wheel motor
61	PCÖVP5010BCZZ	DD	AC	N	C	ハンマーカバー	Cover,Hummer ass'y
62	—						
63	HSSN-5010BCZZ	DG	AD	N	C	シシン	Indicator
64	LANGT5041BCZZ	DP	AF	N	C	シシントリツケ ANG	Angle,indicator
65	QCNW-5071BCZZ	FV	AX	N	C	キヤレツジフラツトW	Cable
66	QCNW-5073BCZZ	DT	AG	N	C	エンコーダケーブル	Cable,wheel motor
67	QCNCM5030BCZZ	DB	AB	N	C	コネクター	Connector,2P (RED)
68	QCNCM5031BCZZ	DB	AB	N	C	コネクター	Connector,3P
69	QCNCM5032BCZZ	DB	AB	N	C	コネクター	Connector,4P
70	QCNCM5033BCZZ	DX	AH	N	C	コネクター	Connector,26P
71	QCNCM5043BCZZ	DS	AG	N	C	コネクター	Connector,2P (BLACK)
72	QPWBN5013BCZZ	EX	AR	N	C	キヤレツジPWB	Carriage PWB w/o parts
73	MSPRK5062BCZZ	DC	AB	N	C	スプリング 2	Spring

22 締結部品 (SCREW, WASHER, etc.)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
a1	XRESJ15-04000	DA	AA		C	Eリング	E type ring
a2	XRESJ20-04000	DB	AA		C	Eリング	E type ring
a3	XRESJ30-06000	DA	AA		C	Eリング	E type ring
a4	XRESJ40-06000	DB	AA		C	Eリング	E type ring
a5	XRESJ50-06000	DA	AA		C	Eリング	E type ring
b1	LX-BZ5019BCZZ	DA	AA	N	C	ビス	Screw
b2	LX-BZ5018BCZZ	DA	AA	N	C	ビス	Screw
b3	LX-BZ5022BCZZ	DA	AA	N	C	ビス	Screw
b4	LX-BZ5017BCZZ	DA	AA	N	C	ビス	Screw
b5	LX-BZ5024BCZZ	DA	AA	N	C	ビス	Screw
b6	LX-BZ5026BCZZ	DA	AA	N	C	ビス	Screw
b7	LX-BZ5025BCZZ	DA	AA	N	C	ビス	Screw
b8	LX-BZ5020BCZZ	DA	AA	N	C	ビス	Screw
b9	LX-BZ5016BCZZ	DA	AA	N	C	ビス	Screw
c1	XBPSD40P08KS0	DA	AA		C	ビス	Screw
d1	XNESD50-40000	DA	AA		C	ナット	Nut
e1	XWSSD50-13000	DA	AA		C	ワッシャ	Washer
f1	XXXSP30L10000	DB	AB		C	ビス	Screw
f2	XXXSP30L08000	DB	AB		C	ビス	Screw
f3	XXXSP40L08000	DB	AB		C	ビス	Screw
g1	XCPSC26P08000				C	タッピング ビス	Screw
g2	XCPSC30P08000	DA	AA		C	タッピング ビス	Screw
g3	XCPSC26P06000	DA	AA		C	タッピング ビス	Screw
g4	XCPSC30P06000				C	タッピング ビス	Screw
h1	LX-WZ5017BCZZ	DA	AA	N	C	ポリスライダー	Washer
h2	LX-WZ5018BCZZ	DA	AA	N	C	ポリスライダー	Washer
h3	LX-WZ5001BCZZ	DA	AA	N	C	ポリスライダー	Washer
h4	LX-WZ5004BCZZ	DA	AA	N	C	ポリスライダー	Washer

21 プリンタ キャリッジ ベース部 (PRINTER CARRIAGE BASE)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DESTINATION TABLE

CODE		MODEL	DESTINATION	CODE		MODEL	DESTINATION
A	4A	ZX-400A	U.S.A.	I	4I	ZX-400I	Italy
	5A	ZX-500A			5I	ZX-500I	
M	4M	ZX-400M	Canada	N	4N	ZX-400N	Norway
	5M	ZX-500M			5N	ZX-500N	
G	4G	ZX-400G	West Germany	NL	4NL	ZX-400NL	Holland
	5G	ZX-500G			5NL	ZX-500NL	
F	4F	ZX-400F	France	P	4P	ZX-400P	Portugal
	5F	ZX-500F			5P	ZX-500P	
SP	4SP	ZX-400SP	Spain	S	4S	ZX-400S	Finland
	5SP	ZX-500SP		FL	5FL	ZX-500FL	
U	4U	ZX-400U	UK	D	4D	ZX-400D	Denmark
	5U	ZX-500U			5D	ZX-500D	
Q	4Q	ZX-400Q	Australia, New Zeland	SG	4SG	ZX-400SG	Switzerland (German)
	5Q	AX-500Q			5SG	ZX-500SG	
EJ	4EJ	ZX-400EJ	South Africa	S	4S	ZX-400S	Sweden
	5EJ	ZX-500EJ			5S	ZX-500S	
EAH	4EAH	ZX-400EA	Hong Kong	B	4B	ZX-400B	Belgium
	5EAH	ZX-500EA			5B	ZX-500B	
EAS	4EAS	ZX-400EA	Singapore	IL	4IL	ZX-400IL	Iceland
	5EAS	ZX-500EA			5IL	ZX-500IL	
EAT	4EAT	ZX-400ET	Taiwan	SF	4SF	ZX-400SF	Switzerland (French)
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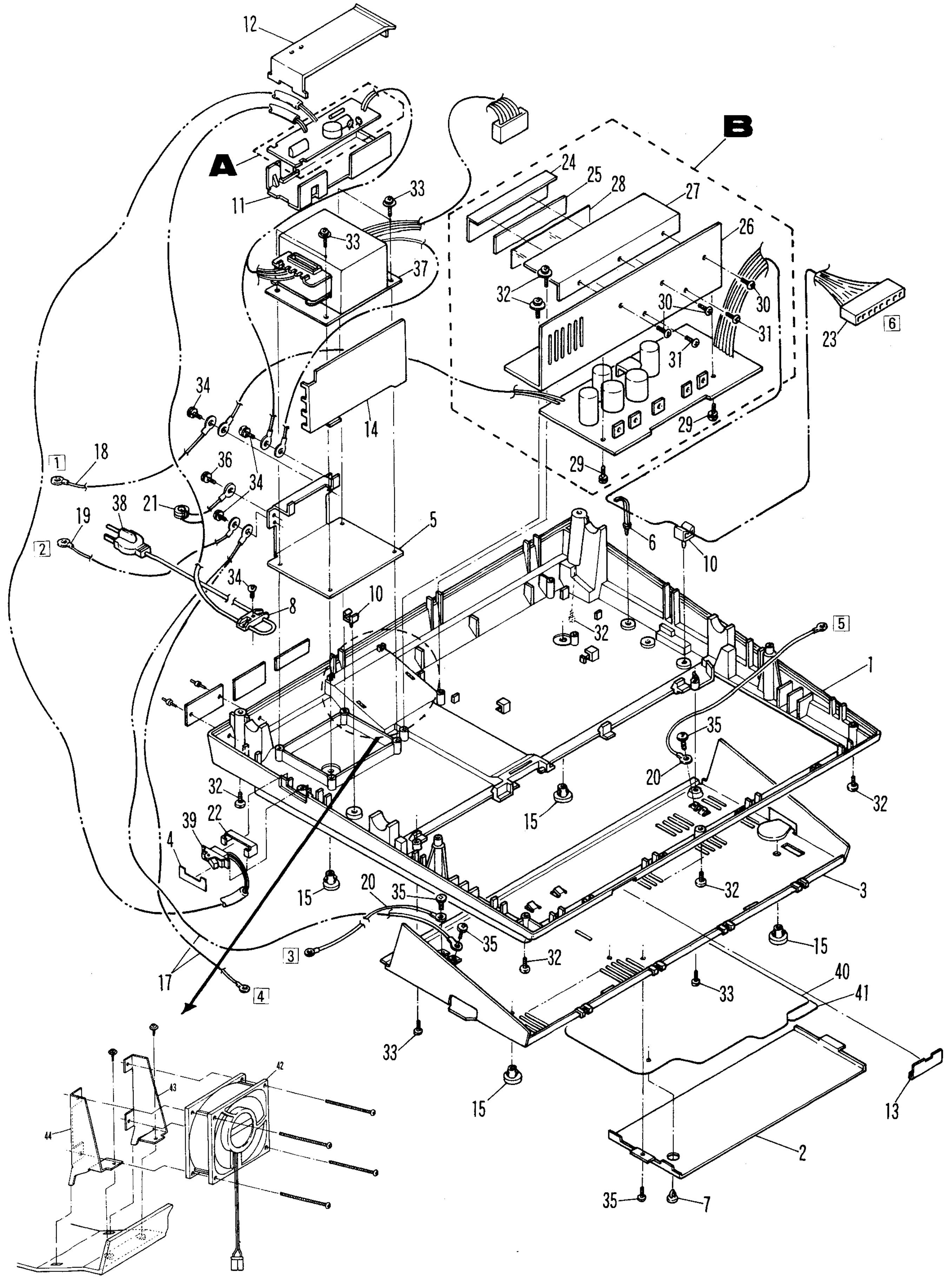
	5EAi	ZX-500EA			5EFA	ZX-500EF	
J	4J	ZX-400J	Japan	ESP	4ESP	ZX-400ES	Peru
	5J	ZX-500J			5ESP	ZX-500ES	

23 下ハウジング部 (LOWER HOUSING)

	NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
			Ja	Ex				
⚠	A	CPWBF5017BC01		BC	N	C	NF,SW−U120V	Primary PS PWB unit (120V)
⚠		CPWBF5017BC02	GQ		N	C	NF,SW−U100V	Primary PS PWB unit (100V)
⚠		CPWBF5018BC01		BD	N	C	NF,SW−U220V	Primary PS PWB unit (220V)
⚠		CPWBF5019BC01		BD	N	C	NF,SW−U240V	Primary PS PWB unit (240V)
	B	CPWBF5020BC01	TD	BW	N	E	PS0U100,120V	Secondary PS PWB unit (100V,120V)
		CPWBF5020BC02		BW	N	E	PS0U220V,240V	Secondary PS PWB unit (220V,240V)
	1	GCABB5011BCZZ	GY	BE	N	D	シタ ハウジング	Housing,lower
	2	GCASP5011BCZZ	DY	AK	N	D	トリセツ ケース	Case,reference card
	3	GFTAU5011BCZZ	FM	AV	N	D	キヤビ ソコイタ	Plate,lower housing (Except Canada)
		GFTAU5015BCZZ		AY	N	C	キヤビソコイタCSA	Plate,lower housing (Canada only)
	4	HPNLC5020BCZZ	DB	AB	N	D	デンゲンSWパネル	Panel,power switch
	5	LANGQ5040BCZZ	EB	AL	N	C	フィルタケーストリツケアングル	Angle,filter case
	6	LBNDJ0020FCZZ	DB	AA		C	スナップバンド	Wire fixing band
	7	LBSHZ2003HCZZ	DB	AB		C	NRP−355	Busing
	8	LHLDK5016BCZZ	DD	AC	N	C	コードロツク	Holder,AC line cord
	9	LHLDW2020SCZZ	DB	AB		C	K−103G	Holder
	10	LHLDW2047SCZZ	DB	AA		C	WS−1NS	Holder
	11	PBŌX−5010BCZZ	DP	AF	N	C	デンゲンSWケース	Box,power switch
	12	PCŌVP5013BCZZ	DH	AD	N	C	SW BOX フタ	Primary PWB box lid
	13	PCŌVP5014BCZZ	DC	AB	N	C	チエツク フタ	Lid for check connector
	14	PCŌVP5015BCZZ	DW	AH	N	C	トランス カバー	Cover for transformer
	15	PGUMM5012BCZZ	DB	AB	N	C	ゴムアシ	Rubber leg
	16	PSPAZ5015BCZZ	DA	AA	N	C	トランスカバークッション	Cussion
	17	QCNW−5080BCZZ	DH	AE	N	C	アースセン L−500	Wire for earth
	18	QCNW−5081BCZZ	DG	AD	N	C	アースセン L−250	Wire for earth
	19	QCNW−5083BCZZ	DK	AE	N	C	グレートワイヤNO1	Earth wire
	20	QCNW−5084BCZZ	DM	AE	N	C	グレートワイヤNO2	Earth wire
	21	RCŌRF2001SCZZ	EC	AN		C	ESD−R19	Ferrite core for radiation noise
	22	PCŌVP5017BCZZ	DA	AA	N	C	SW−カバー	Insulator for AC SW
	23	QCNW−5074BCZZ	EJ	AN	N	C	9Pケーブル	9 pin connector with cable
	24	LANGF2437SCZZ	DL	AE		C	TRオサエイタ	Transistor fix plate
	25	PGUMS2042SCZZ	DR	AG		C	TRオサエゴム	Transistor support rubber
	26	PRDAF5013BCZZ	HN	BG	N	C	ホウネツバン	Heat sink plate,vertical
	27	PRDAF5014BCZZ	FP	AV	N	C	ホウネツテンバン	Heat sink plate,top
	28	PZETM2002SCZZ	DL	AA		C	マイラー P2	Miller film for insulator
	29	XBPSD30P06K00	DA	AA		C	ビス	Screw
	30	XBPSD30P08K00	DA	AA		C	ビス	Screw
	31	XBPSD30P16K00	DA	AA		C	ビス	Screw
	32	XBPSD40P10KS0	DA	AA		C	ビス	Screw
	33	XBPSD40P14KS0	DA	AA		C	ビス	Screw
	34	XBPSD30P08KS0	DA	AA		C	ビス	Screw
	35	XVPSD30P06000	DA	AA		C	ビス	Screw
	36	XBPBZ40P08K00	DA	AA		C	ビス	Screw
⚠	37	RTRNP5011BCZZ		BH	N	B	デンゲントランス	Power transformer (120V)
⚠		RTRNP5012BCZZ		BL	N	B	デンゲントランス	Power transformer (220V/240V)
⚠		RTRNP5013BCZZ	HT		N	B	デンゲントランス	Power transformer (100V)
⚠	38	QACCD7413QCN1		AQ	N	B	ACコード	AC cord (Destination) [A,M]
⚠		QACCL7420QCZZ		AV	N	B	ACコード	AC cord (Destination) [Q]
⚠		QACCJ3419QCN1	EC		N	B	ACコード	AC cord (Destination) [J, EAT]
⚠		QACCV6420QCN1		AV	N	B	ACコード	AC cord (Destination) [G,F,N,NL,S,FL,D,B,IL,EFA,EP]
⚠		QCNW−0035FCN1		AT	N	B	ACコード	AC cord (Destination) [SP,I,P]
⚠		QACCS7420QCZZ		AT	N	B	ACコード	AC cord (Destination) [SG,SF]
⚠		QACCB7122QCZZ		AX	N	B	ACコード	AC cord (Destination) [U,EAS]
⚠		QACCB7123QCZZ			N	B	ACコード	AC cord (Destination) [EJ,EAH]
⚠		QCNW−5086BCZZ			N	B	ACコード	AC cord (Destination) [EAI]
⚠	39	QSW−C1071CCZZ		AK		B	シーソースイッチ	Seesaw switch (120V)
⚠		QSW−C7230QCZZ		AK	N	B	シーソースイッチ	Seesaw switch (220V/240V)
⚠		QSW−C1019CCN1	DY			B	シーソースイッチ	Seesaw switch (100V)
	40	TiNSE5045BCZZ		AT	N	D		Reference card (Destination) (4B,5B,4EP,5EP,4N,5N,4S,5S,5FL,4D,5D, 4EAT,5EAT,4P,5P,4EAI,5EAI,4IL,5IL)
		TiNSG5047BCZZ		AT	N	D		Reference card (Destination) [4G,5G,4SG,5SG]
		TiNSi5049BCZZ		AT	N	D		Reference card (Destination) [4I,5I]
		TiNSZ5051BCZZ		AT	N	D		Reference card (Destination) [4NL,5NL]
		TiNSF5053BCZZ		AT	N	D		Reference card (Destination) [4EFA,5EFA,4F,5F,4SF,5SF]
		TiNSE5055BCZZ	FG	AT	N	D		Reference card (Destination) [4EAH,5EAH,4EAS,5EAS,4J,5J,4A,5A]
	41	TiNSE5046BCZZ		AT	N	D		Reference card (Destination) [5N,5FL,5EAT,5S,5B,5EP,5EAI,5U,5M,5Q,5IL,]
		TiNSG5048BCZZ		AT	N	D		Reference card (Destination) [5G,5SG]
		TiNSi5050BCZZ		AT	N	D		Reference card (Destination) [5I]
		TiNSZ5052BCZZ		AT	N	D		Reference card (Destination) [5NL]
		TiNSF5054BCZZ		AT	N	D		Reference card (Destination) [5EFA,5F,5SF]
		TiNSE5056BCZZ	FG	AT	N	D		Reference card (Destination)
	42	NFANP5001BCZZ			N	B	ファンモータ	Fan motor
	43	LANGT5048BCZZ			N	C	ファントリツケアングル L	Angle L
	44	LANGT5049BCZZ			N	C	ファントリツケアングル R	Angle R
	37	RTRNP5014BCZZ			N	B	デンゲントランス	Power transformer (110V)

23 下ハウジング部 (LOWER HOUSING)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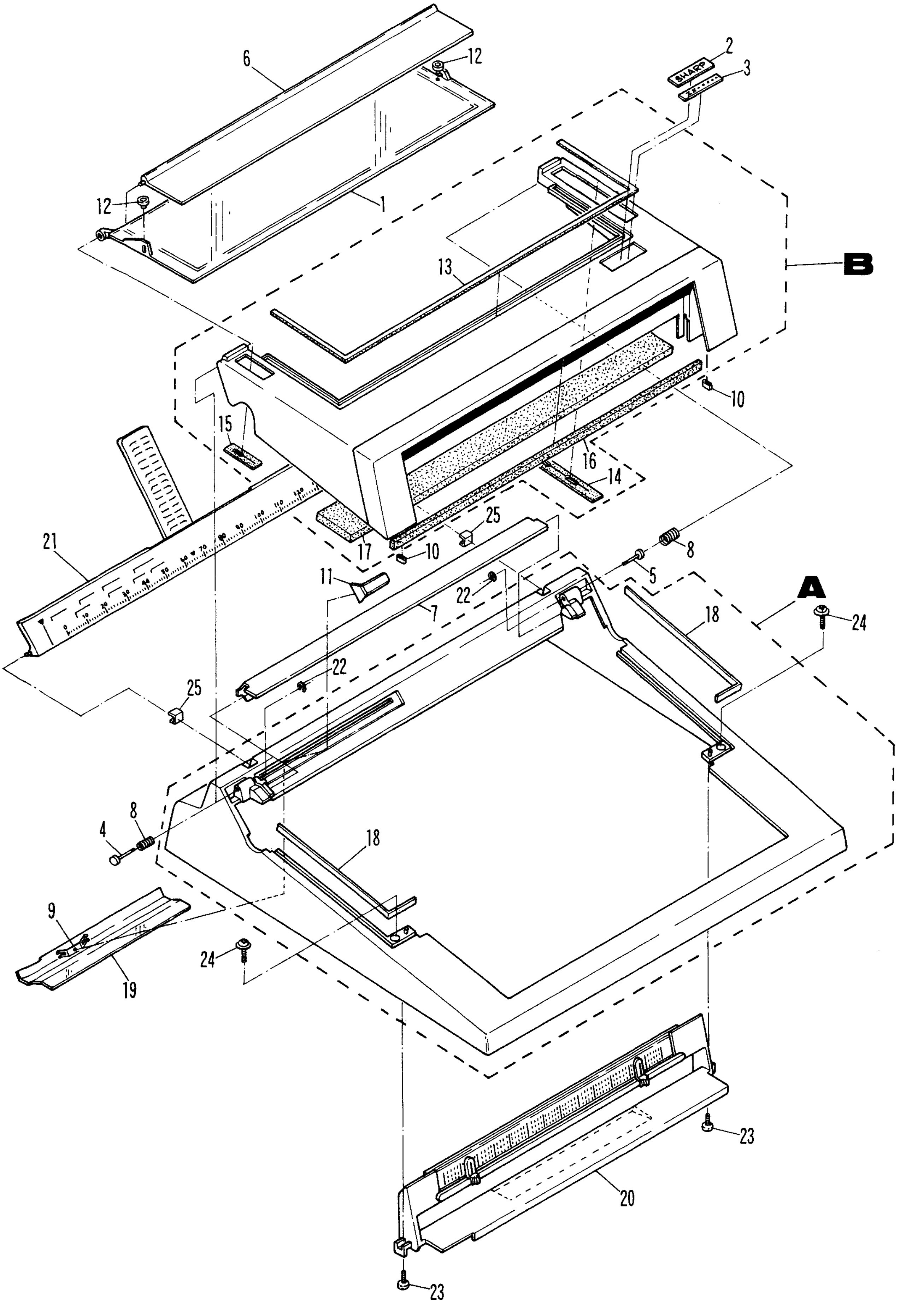
BACK VIEW

24 上ハウジング部 (UPPER HOUSING)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
A	CCABA5010BC10	HQ	BH	N	D	ウエハウジングクミヒン	Upper housing ass'y
B	CCABC5012BC01	GN	BB	N	D	カバークミヒン	Cover ass'y
1	GCÔVZ5010BCZZ	FG	AT	N	D	ボウオンカバー	Acounstic hood
2	HBDGD2035SCZZ	DL	AF		C	シャープ バッジ	Badge,SHARP
3	HBDGD5001BCZZ		AD	N	C	ZX400 バツジ	Badge,ZX－400
	HBDGD5002BCZZ		AD	N	C	ZX500 バッジ	Badge,ZX－500
	HBDGD5003BCZZ	DH		N	C	ZX400Jバッジ	Badge,ZX－400J (Japan only)
	HBDGD5004BCZZ	DH		N	C	ZX500J バッジ	Badge,ZX－500J (Japan only)
4	LPiNS5010BCZZ	DH	AD	N	C	カバーシテンジクA	Shaft for lid,left
5	LPiNS5011BCZZ	DF	AD	N	C	カバーシテンジクB	Shaft for lid,right
6	LPLTP5010BCZZ	DZ	AK	N	D	フード	Antirefrector
7	LPLTP5011BCZZ	DX	AH	N	D	セパレータ	Cover
8	MSPRC5031BCZZ	DA	AA	N	C	カバージクーSP	Spring for lid shaft
9	MSPRP5032BCZZ	DC	AB	N	C	ガイドコテイーSP	Spring
10	PDMPZ5011BCZZ	DB	AB	N	C	ゴムダンパー	Cussion absorber
11	PGiDM5010BCZZ	DC	AB	N	D	ペーパーガイド	Paper guide
12	PGUMM5010BCZZ	DB	AB	N	C	フードコテイゴム	Cussion absorber
13	PSPF－5010BCZZ	DF	AD	N	C	ボウオンカバーシル	Acoustic hood seal
14	PSPF－5011BCZZ	DR	AG	N	C	レバーシール R	Seal,R
15	PSPF－5012BCZZ	DK	AE	N	C	レバーシール L	Seal,L
16	PSPF－5013BCZZ	DB	AB	N	C	マスク シール	Seal
17	PSPF－5014BCZZ	DK	AE	N	C	カバーシール	Seal
18	PSPF－5015BCZZ	DD	AC	N	C	ウエハウシール A	Upper cabinet seal
19	PSPF－5017BCZZ	DJ	AE	N	C	ボウゴシート	Miller film
20	CCÔVZ5011BC01	FV	AX	N	D	マスククミヒン	Mask ass'y ZX－400 (J)
	CCÔVZ5012BC01	FV	AX	N	D	マスククミヒン	Mask ass'y ZX－500 (J)
21	CiTAT5010BC01	EZ	AR	N	D	ペーパオサエクミヒン	Paper suppoter ass'y
22	XRESJ30－06000	DA	AA		C	Eリング	E clip
23	XCPSD30P10000	DA	AA		C	ビス	Screw
24	XBPSD40P10KS0	DA	AA		C	ビス	Screw
25	MSPRP5061BCZZ	DR	AG	N	C	PS シジ バネ	Spring

㉔ 上ハウジング部 (UPPER HOUSING)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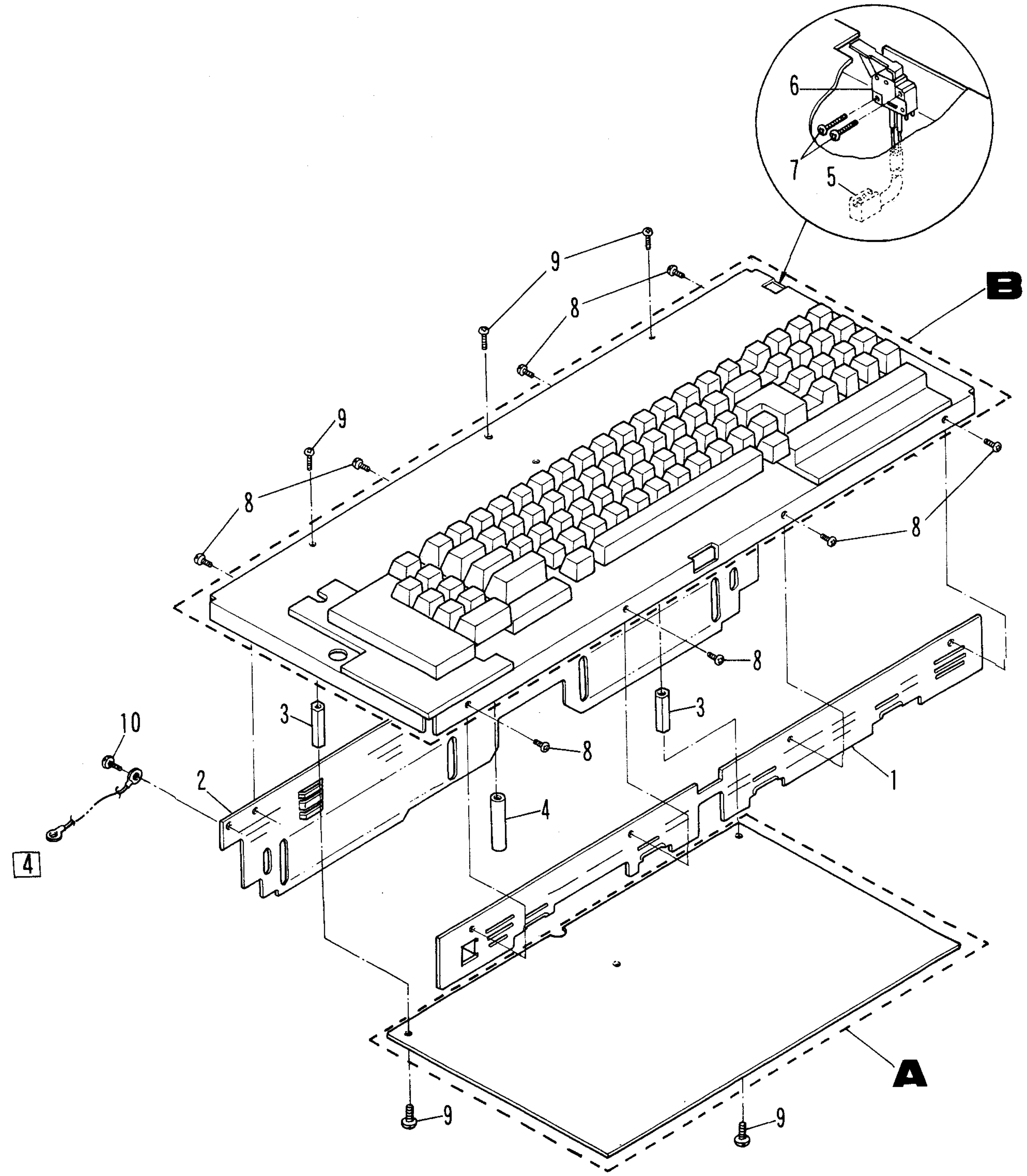
25 フルキーボード部 (FULLKEY KEYBOARD) ZX-400

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
A	DUNTK5813BCZZ	VS	**	N	E	メインキバンユニット (ROM2ナシ)	Main PWB unit w/o ROM2
B						KEY−U	Complete key unit (Japan only)
	00PZX400KBD47		BZ	N	E	47キー キーボードユニット (キートップナシ)	47−Key keyboard unit w/o key tops
	00PZX400KBD48		BZ	N	E	48キー キーボードユニット (キートップナシ)	48−Key keyboard unit w/o key tops
1	LANGF5042BCZZ	EK	AN	N	C	KEYシジマエ	Keyboard support front
2	LANGF5043BCZZ	EQ	AP	N	C	KEYシジウシロ	Keyboard support rear
3	NSFTZ5044BCZZ	DF	AD	N	C	PWBトリツケジクB	Spacer
4	NSFTZ5045BCZZ	DF	AD	N	C	PWBシジジク	Spacer
5	QCNW−5085BCZZ	DG	AD	N	C	2P CNセンツキ	Connector with wire
6	QSW−M5010BCZZ	DP	AF	N	C	マイクロスイッチ	Micro switch
7	XBTSD20P08000	DA	AA		C	ビス	Screw
8	XBPSD30P06K00	DA	AA		C	ビス	Screw
9	XBPSD40P08KS0	DA	AA		C	ビス	Screw
10	XCPSD30P08000	DA	AA		C	ビス	Screw

25 フルキーボード部 (FULLKEY BEYBOARD) ZX-400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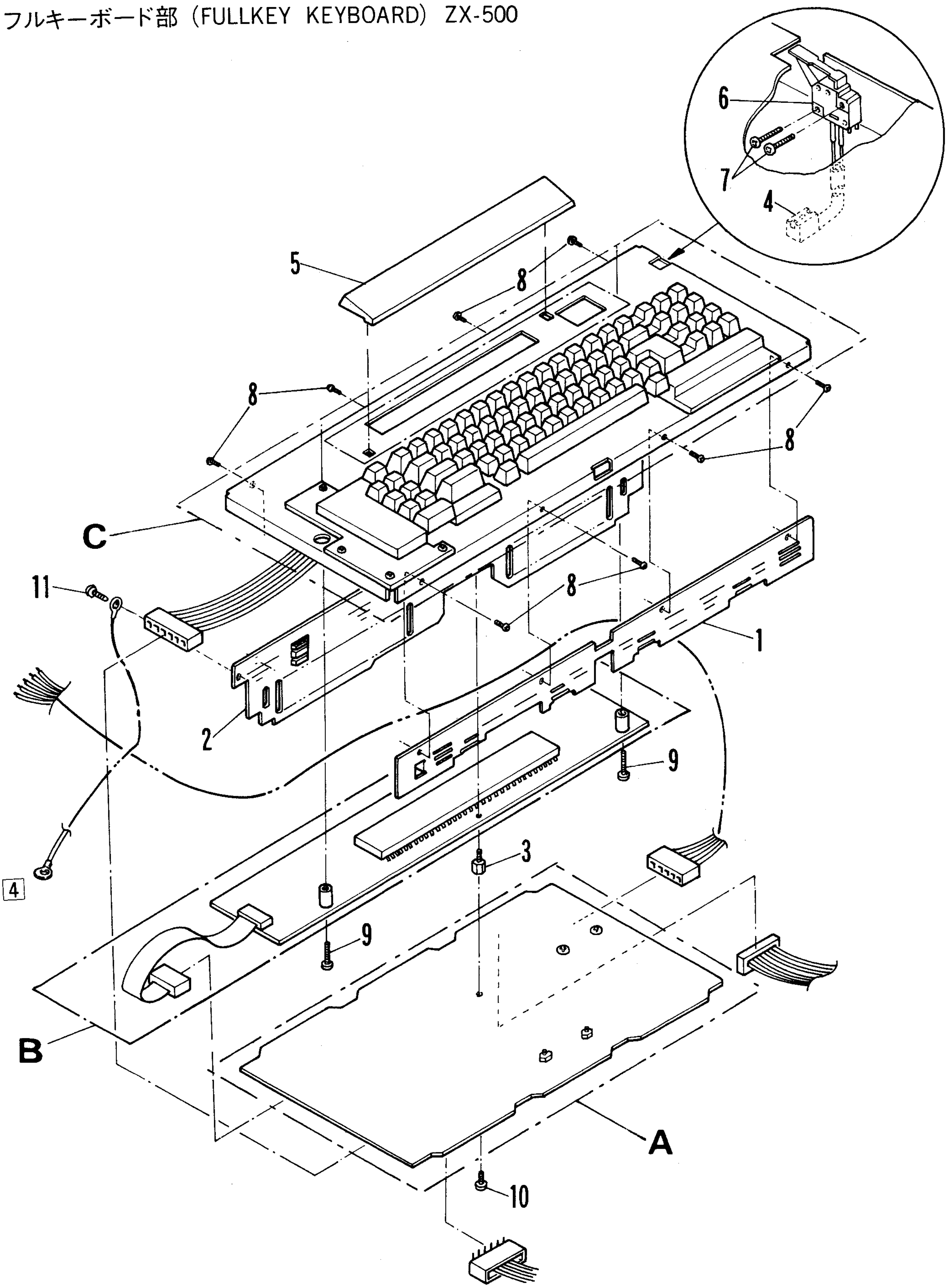
26 フルキーボード部 (FULLKEY KEYBOARD) ZX-500

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
A	DUNTK5814BCZZ	**	**	N	E	メインキバンユニット (ROM4ナシ)	Main PWB unit w/o ROM4
B	DUNTK5812BCZZ	UF	CC	N	E	ヒョウジキバンユニット	Display PWB unit
C						キーユニット	Complete key unit (Japan only)
	00PZX500KBD47		BZ	N	E	47キー キーボードユニット (キートップナシ)	47−Key keyboard unit w/o key tops
	00PZX500KBD48		BZ	N	E	48キー キーボードユニット (キートップナシ)	48−Key keyboard unit w/o key tops
1	LANGF5042BCZZ	EK	AN	N	C	KEYシジマエ	Keyboard support front
2	LANGF5043BCZZ	EQ	AP	N	C	KEYシジウシロ	Keyboard support rear
3	NSFTZ5040BCZZ	DE	AC	N	C	PWBトリツケジク	Spacer
4	QCNW−5085BCZZ	DG	AD	N	C	2P CNセンツキ	Connector with wire
5	PFiLW5010BCZZ	DV	AH	N	C	フィルター	Display filter
6	QSW−M5010BCZZ	DP	AF	N	C	マイクロスイッチ	Microswitch
7	XBTSD20P08000	DA	AA		D	ビス	Screw
8	XBPSD30P06K00	DA	AA		C	ビス	Screw
9	XBPSD30P23000	DA	AA		C	ビス	Screw
10	XBPSD40P08KS0	DA	AA		C	ビス	Screw
11	XCPSD30P08000	DA	AA		C	ビス	Screw

26 フルキーボード部 (FULLKEY KEYBOARD) ZX-500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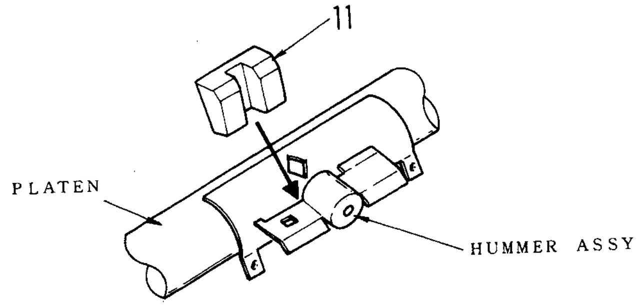
27 梱包材・付属品 (PACKING MATERIAL ACCESARIES) ZX-400

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
1	PCOVM5016BCZZ	ES	AQ	N	D	ダストカバー	Dust cover
2	SPAKA5042BCZZ	DZ	AK	N	D	アドーL	Packing aid,left
3	SPAKA5043BCZZ	DZ	AK	N	D	アドーR	Packing aid,right
4	SPAKA5045BCZZ	DG	AD	N	D	アドーA	Packing aid
5	SPAKA5131BCZZ	DB	AB	N	D	セパレータスペーサ	Spacer
6	SPAKC5040BCZZ		AW	N	D	パッキングケース	Packing case
	SPAKC5044BCZZ	FS		N	D	パッキングケース	Packing case (Japan only)
7	SSAKH1020CCZZ	DA	AA		D	ポリサック	Vinyl sack
8	SSAKA2320QCZZ	DA	AA		D	ポリサック	Vinyl sack
9	SSAKH3012KCZZ	DH	AD		D	ポリサック	Vinyl sack
10	TiNSA5031BCZZ		AS	N	D	トリアツカイセツメイショ	Instruction book (Destination) 〔4A〕
	TiNSE5020BCZZ		AN	N	D	トリアツカイセツメイショ	Instruction book (Destination) 〔4S,4N,4EAI,4EAT,4EAS,4U,4EAH,4IL〕
	TiNSF5037BCZZ		AW	N	D	トリアツカイセツメイショ	Instruction book (Destination) [4M]
	TiNSG5021BCZZ		AT	N	D	トリアツカイセツメイショ	Instruction book (Destination) [4G]
	TiNSF5033BCZZ		AT	N	D	トリアツカイセツメイショ	Instruction book (Destination) 〔4F,4EFA〕
	TiNSZ5043BCZZ		AT	N	D	トリアツカイセツメイショ	Instruction book (Destination) 〔4Q,4EJ〕
	TiNSi5039BCZZ		AT	N	D	トリアツカイセツメイショ	Instruction book (Destination) [4I]
	TiNSH5041BCZZ		AT	N	D	トリアツカイセツメイショ	Instruction book (Destination) [4NL]
	TiNSS5035BCZZ		AT	N	D	トリアツカイセツメイショ	Instruction book (Destination) [4SG,4SF]
	TiNSJ5029BCZZ			N	D	トリアツカイセツメイショ	Instruction book (Destination) [4J]
11	SPAKA5132BCZZ			N	D	パッキング	Packing
12	SPAKA5133BCZZ			N	D	パッキング カバーホゴ	Packing,cover
13	SPAKA5134BCZZ			N	D	パッキング ソコホゴ	Packing,bottom

DESTINATION TABLE

CODE		MODEL	DESTINATION	CODE		MODEL	DESTINATION
A	4A	ZX-400A	U.S.A.	I	4I	ZX-400I	Italy
	5A	ZX-500A			5I	ZX-500I	
M	4M	ZX-400M	Canada	N	4N	ZX-400N	Norway
	5M	ZX-500M			5N	ZX-500N	
G	4G	ZX-400G	West Germany	NL	4NL	ZX-400NL	Holland
	5G	ZX-500G			5NL	ZX-500NL	
F	4F	ZX-400F	France	P	4P	ZX-400P	Portugal
	5F	ZX-500F			5P	ZX-500P	
SP	4SP	ZX-400SP	Spain	S	4S	ZX-400S	Finland
	5SP	ZX-500SP		FL	5FL	ZX-500FL	
U	4U	ZX-400U	UK	D	4D	ZX-400D	Denmark
	5U	ZX-500U			5D	ZX-500D	
Q	4Q	ZX-400Q	Australia, New Zeland	SG	4SG	ZX-400SG	Switzerland (German)
	5Q	AX-500Q			5SG	ZX-500SG	
EJ	4EJ	ZX-400EJ	South Africa	S	4S	ZX-400S	Sweden
	5EJ	ZX-500EJ			5S	ZX-500S	
EAH	4EAH	ZX-400EA	Hong Kong	B	4B	ZX-400B	Belgium
	5EAH	ZX-500EA			5B	ZX-500B	
EAS	4EAS	ZX-400EA	Singapore	IL	4IL	ZX-400IL	Iceland
	5EAS	ZX-500EA			5IL	ZX-500IL	
EAT	4EAT	ZX-400ET	Taiwan	SF	4SF	ZX-400SF	Switzerland (French)
	5EAT	ZX-500ET			5SF	ZX-500SF	
EAi	4EAi	ZX-400EA	Indonesia	EFA	4EFA	ZX-400EF	Algeria
	5EAi	ZX-500EA			5EFA	ZX-500EF	
J	4J	ZX-400J	Japan	ESP	4ESP	ZX-400ES	Peru
	5J	ZX-500J			5ESP	ZX-500ES	

27 梱包材・付属品 (PACKING MATERIAL ACCESARIES) ZX-400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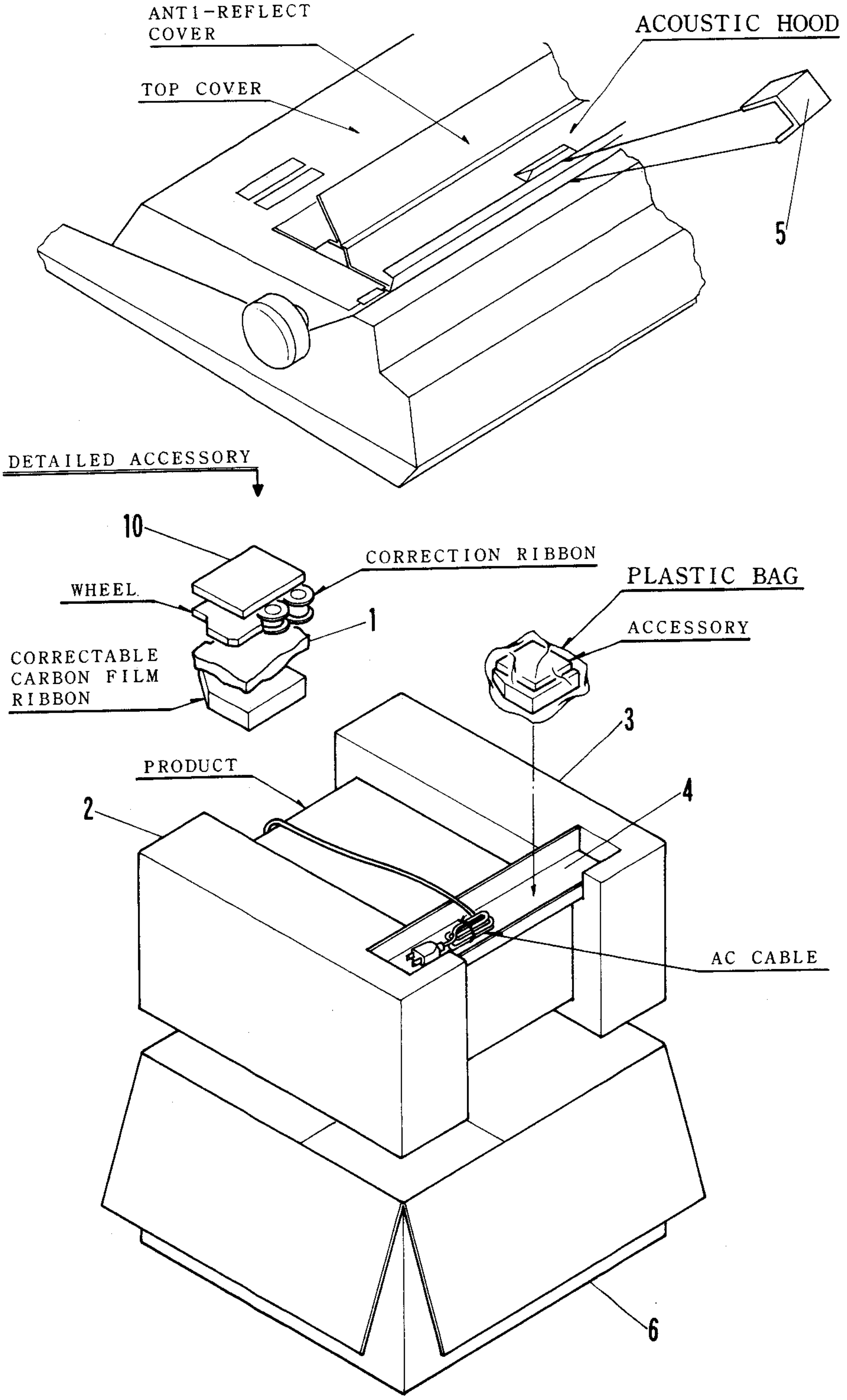
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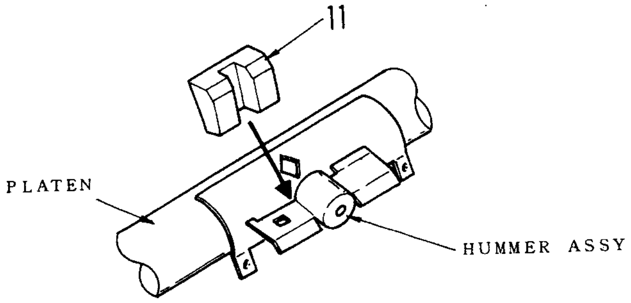
28 梱包材・付属品 (PACKING MATERIAL ACCESARIES) ZX-500

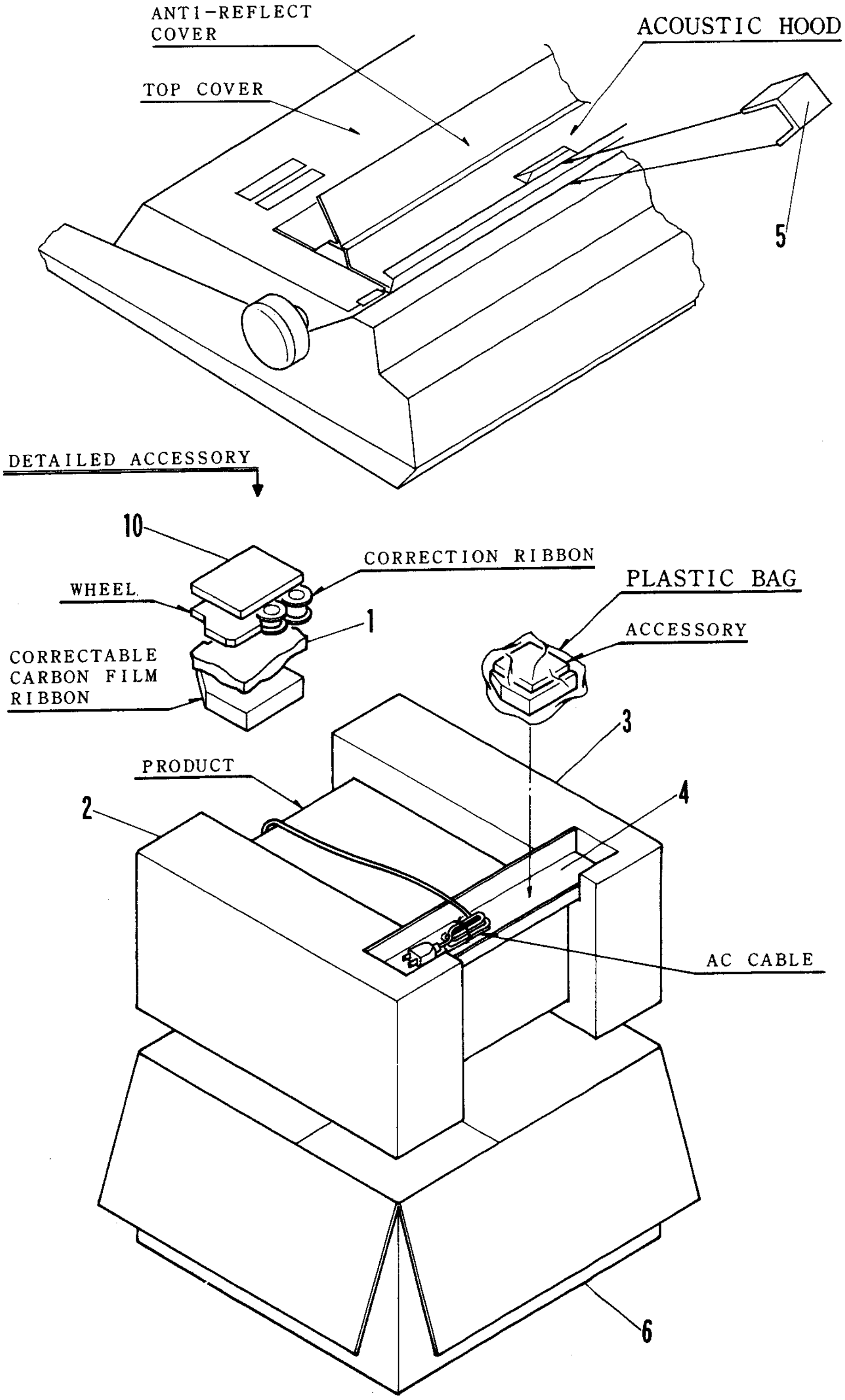
NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION		
		Ja	Ex					
1	PCÖVM5016BCZZ	ES	AQ	N	D	ダストカバー	Dust cover	
2	SPAKA5042BCZZ	DZ	AK	N	D	アドーL	Packing aid left	
3	SPAKA5043BCZZ	DZ	AK	N	D	アドーR	Packing aid right	
4	SPAKA5045BCZZ	DG	AD	N	D	アドーA	Packing aid	
5	SPAKA5131BCZZ	DB	AB	N	D	セパレータスペーサ	Spacer	
6	SPAKC5041BCZZ		AW	N	D	パッキングケース	Packing case	
	SPAKC5044BCZZ	FS		N	D	パッキングケース	Packing case (Japan only)	
7	SSAKH1020CCZZ	DA	AA		D	ポリサック	Vinyl sack	
8	SSAKA2320QCZZ	DA	AA		D	ポリサック	Vinyl sack	
9	SSAKH3012KCZZ	DH	AD		D	ポリサック	Vinyl sack	
10	TiNSA5032BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5A〕
	TiNSF5038BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	[5M]
	TiNSG5022BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	[5G]
	TiNSF5034BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5F,5EFA〕
	TiNSE5023BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5S,5FL,5N,5EAI,5EAT,5U,5EAH,5EAS,5IL〕
	TiNSZ5044BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5Q,5EJ〕
	TiNSi5040BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	[5I]
	TiNSH5042BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	[5NL]
	TiNSS5036BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	[5SG,5SF]
	TiNSJ5030BCZZ	FU		N	D	トリアツカイセツメイショ	Instruction book (Destination)	[5J]
11	SPAKA5132BCZZ			N	D	パッキング	Packing	
12	SPAKA5133BCZZ			N	D	パッキング カバーホゴ	Packing,cover	
13	SPAKA5134BCZZ			N	D	パッキング ソコホゴ	Packing,bottom	

DESTINATION TABLE

CODE		MODEL	DESTINATION	CODE		MODEL	DESTINATION
A	4A	ZX-400A	U.S.A.	I	4I	ZX-400I	Italy
	5A	ZX-500A			5I	ZX-500I	
M	4M	ZX-400M	Canada	N	4N	ZX-400N	Norway
	5M	ZX-500M			5N	ZX-500N	
G	4G	ZX-400G	West Germany	NL	4NL	ZX-400NL	Holland
	5G	ZX-500G			5NL	ZX-500NL	
F	4F	ZX-400F	France	P	4P	ZX-400P	Portugal
	5F	ZX-500F			5P	ZX-500P	
SP	4SP	ZX-400SP	Spain	S	4S	ZX-400S	Finland
	5SP	ZX-500SP		FL	5FL	ZX-500FL	
U	4U	ZX-400U	UK	D	4D	ZX-400D	Denmark
	5U	ZX-500U			5D	ZX-500D	
Q	4Q	ZX-400Q	Australia, New Zeland	SG	4SG	ZX-400SG	Switzerland (German)
	5Q	AX-500Q			5SG	ZX-500SG	
EJ	4EJ	ZX-400EJ	South Africa	S	4S	ZX-400S	Sweden
	5EJ	ZX-500EJ			5S	ZX-500S	
EAH	4EAH	ZX-400EA	Hong Kong	B	4B	ZX-400B	Belgium
	5EAH	ZX-500EA			5B	ZX-500B	
EAS	4EAS	ZX-400EA	Singapore	IL	4IL	ZX-400IL	Iceland
	5EAS	ZX-500EA			5IL	ZX-500IL	
EAT	4EAT	ZX-400ET	Taiwan	SF	4SF	ZX-400SF	Switzerland (French)
	5EAT	ZX-500ET			5SF	ZX-500SF	
EAi	4EAi	ZX-400EA	Indonesia	EFA	4EFA	ZX-400EF	Algeria
	5EAi	ZX-500EA			5EFA	ZX-500EF	
J	4J	ZX-400J	Japan	ESP	4ESP	ZX-400ES	Peru
	5J	ZX-500J			5ESP	ZX-500ES	

28 梱包材・付属品 (PACKING MATERIAL ACCESARIES) ZX-500


11
PLATEN
HUMMER ASSY


ANTI-REFLECT COVER
TOP COVER
ACOUSTIC HOOD
5
DETAILED ACCESSORY
10
WHEEL
CORRECTION RIBBON
1
CORRECTABLE CARBON FILM RIBBON
PLASTIC BAG
ACCESSORY
3
PRODUCT
2
4
AC CABLE
6

■索　引 (Index)

PARTS CODE	NO.	PRICE R.		NEW	P/R	
		Ja.	Ex.			
【C】						
CCABA5010BC10	24-A	HQ	BH	N	D	
CCABC5012BC01	24-B	GN	BB	N	D	
CCASZ5010BC01	21-A	HV	BK	N	E	
CCŌVZ5011BC01	24- 20	FV	AX	N	D	
CCŌVZ5012BC01	24- 20	FV	AX	N	D	
CDAIH5010BC01	20-A	UA	CA	N	E	
CITAT5010BC01	24- 21	EZ	AR	N	D	
CMŌTN5011BC01	20-B	GU	BD	N	E	
CMŌTN5013BC01	21- 42	FV	AX	N	B	
CMŌTZ5010BC01	21- 57	MJ	BQ	N	E	
CMŌTZ5012BC01	20- 56	MK	BQ	N	E	
CPLYB5021BC01	20- 28	EM	AP	N	C	
CPLYM5020BC01	20- 61	ES	AQ	N	C	
CPWBF5017BC01	23-A		BC	N	C	
CPWBF5017BC02	23-A	GQ		N	C	
CPWBF5018BC01	23-A		BD	N	C	
CPWBF5019BC01	23-A		BD	N	C	
CPWBF5020BC01	23-B	TD	BW	N	E	
CPWBF5020BC02	23-B		BW	N	E	
【D】						
DUNTK5812BCZZ	26-B	UF	CC	N	E	
DUNTK5813BCZZ	25-A	VS	**	N	E	
DUNTK5814BCZZ	26-A	**	**	N	E	
DUNTM5055BCZZ	21- 58	HP	BH	N	E	
【G】						
GCABB5011BCZZ	23- 1	GY	BE	N	D	
GCASP5011BCZZ	23- 2	DY	AK	N	D	
GCŌVZ5010BCZZ	24- 1	FG	AT	N	D	
GFTAU5011BCZZ	23- 3	FM	AV	N	D	
GFTAU5015BCZZ	23- 3		AY	N	C	
【H】						
HBDGD2035SCZZ	24- 2	DL	AF		C	
HBDGD5001BCZZ	24- 3		AD	N	C	
HBDGD5002BCZZ	24- 3		AD	N	C	
HBDGD5003BCZZ	24- 3	DH		N	C	
HBDGD5004BCZZ	24- 3	DH		N	C	
HPNLC5020BCZZ	23- 4	DB	AB	N	D	
HSSN-5010BCZZ	21- 63	DG	AD	N	C	
【J】						
JKNBZ5010BCZZ	20- 58	DC	AB	N	C	
JKNBZ5011BCZZ	20- 62	DK	AE	N	C	
JKNBZ5012BCZZ	21- 59	DB	AB	N	C	
【L】						
LANGF2437SCZZ	23- 24	DL	AE		C	
LANGF5042BCZZ	25- 1	EK	AN	N	C	
〃	26- 1	EK	AN	N	C	
LANGF5043BCZZ	25- 2	EQ	AP	N	C	
〃	26- 2	EQ	AP	N	C	
LANGQ5040BCZZ	23- 5	EB	AL	N	C	
LANGT5041BCZZ	21- 64	DP	AF	N	C	
LANGT5048BCZZ	23- 43			N	C	
LANGT5049BCZZ	23- 44			N	C	
LBNDJ0020FCZZ	20- 1	DB	AA		C	
〃	23- 6	DB	AA		C	
LBSHZ2003HCZZ	23- 7	DB	AB		C	
LBSHZ5010BCZZ	21- 17	DC	AB	N	C	
LDAIH5010BCZZ	21- 1	ET	AQ	N	C	
LDAIH5011BCZZ	21- 44	EZ	AR	N	C	
LFIX-5010BCZZ	21- 45	DL	AE	N	C	
LFRM-5010BCZZ	20- 43	DY	AK	N	C	
LFRM-5012BCZZ	20- 57	DV	AH	N	C	
LHLDK5016BCZZ	23- 8	DD	AC	N	C	
LHLDR5010BCZZ	20- 2	DJ	AE	N	C	
LHLDR5011BCZZ	20- 3	DH	AD	N	C	
LHLDW2020SCZZ	23- 9	DB	AB		C	
LHLDW2047SCZZ	20- 4	DB	AA		C	
〃	23- 10	DB	AA		C	
LHLDW5019BCZZ	20- 5			N	C	
LHLDZ5012BCZZ	21- 46	DD	AC	N	C	
LHLDZ5015BCZZ	20- 64	DN	AF	N	C	
LHLDZ5017BCZZ	21- 2	DN	AF	N	C	
LHLDZ5018BCZZ	21- 3	DE	AC	N	C	
LPINS5010BCZZ	24- 4	DH	AD	N	C	
LPINS5011BCZZ	24- 5	DF	AD	N	C	
LPLTM5015BCZZ	21- 60	DZ	AK	N	C	
LPLTM5018BCZZ	21- 47	DF	AD	N	C	
LPLTM5019BCZZ	20- 6	DE	AC	N	C	

PARTS CODE	NO.	PRICE R.		NEW	P/R	
		Ja.	Ex.			
LPLTM5020BCZZ	20- 7	DJ	AE	N	C	
LPLTM5021BCZZ	20- 44	DH	AE	N	C	
LPLTP5010BCZZ	24- 6	DZ	AK	N	D	
LPLTP5011BCZZ	24- 7	DX	AH	N	D	
LRALM5010BCZZ	20- 8	FL	AV	N	C	
LRALM5011BCZZ	20- 9	FK	AU	N	C	
LSTPF5012BCZZ	21- 18	DC	AC	N	C	
LSTPF5013BCZZ	21- 19	DF	AD	N	C	
LSTPF5015BCZZ	21- 20	DF	AD	N	C	
LSTYM5010BCZZ	21- 4	DF	AD	N	C	
LSTYM5012BCZZ	21- 5	DJ	AE	N	C	
LX-BZ5010BCZZ	20- 11	DE	AC	N	C	
LX-BZ5011BCZZ	20- 12	DG	AD	N	C	
LX-BZ5012BCZZ	21- 6	DF	AD	N	C	
LX-BZ5016BCZZ	22-B09	DA	AA	N	C	
LX-BZ5017BCZZ	22-B04	DA	AA	N	C	
LX-BZ5018BCZZ	22-B02	DA	AA	N	C	
LX-BZ5019BCZZ	22-B01	DA	AA	N	C	
LX-BZ5020BCZZ	22-B08	DA	AA	N	C	
LX-BZ5022BCZZ	22-B03	DA	AA	N	C	
LX-BZ5024BCZZ	22-B05	DA	AA	N	C	
LX-BZ5025BCZZ	22-B07	DA	AA	N	C	
LX-BZ5026BCZZ	22-B06	DA	AA	N	C	
LX-WZ5001BCZZ	22-H03	DA	AA	N	C	
LX-WZ5004BCZZ	22-H04	DA	AA	N	C	
LX-WZ5017BCZZ	22-H01	DA	AA	N	C	
LX-WZ5018BCZZ	22-H02	DA	AA	N	C	
【M】						
MCAMP5020BCZZ	21- 21	DH	AE	N	C	
MCAMP5021BCZZ	21- 22	DD	AC	N	C	
MLEVF5020BCZZ	21- 48	DF	AD	N	C	
MLEVF5021BCZZ	21- 49	DR	AF	N	C	
MLEVF5022BCZZ	21- 50	DF	AD	N	C	
MLEVF5023BCZZ	21- 23	DD	AC	N	C	
MLEVF5026BCZZ	21- 7	DF	AD	N	C	
MLEVF5027BCZZ	21- 24	DF	AD	N	C	
MLEVF5028BCZZ	21- 25	DF	AD	N	C	
MLEVP5010BCZZ	20- 13	DH	AD	N	C	
MLEVP5011BCZZ	20- 14	DG	AD	N	C	
MLEVP5012BCZZ	20- 45	DE	AC	N	C	
MLEVP5013BCZZ	20- 46	DF	AD	N	C	
MLEVP5014BCZZ	20- 15	DC	AB	N	C	
MLEVP5015BCZZ	20- 16	DE	AC	N	C	
MLEVP5016BCZZ	20- 17	DD	AC	N	C	
MLEVP5018BCZZ	20- 18	DE	AC	N	C	
MLNKM5010BCZZ	20- 19	DD	AC	N	C	
MSPRC5031BCZZ	24- 8	DA	AA	N	C	
MSPRC5034BCZZ	20- 20	DB	AB	N	C	
MSPRC5044BCZZ	21- 26	DA	AA	N	C	
MSPRD5038BCZZ	20- 21	DB	AB	N	C	
MSPRD5039BCZZ	20- 22	DB	AB	N	C	
MSPRD5056BCZZ	21- 27	DA	AA	N	C	
MSPRK5060BCZZ	20- 42	DC	AB	N	C	
MSPRK5062BCZZ	21- 73	DC	AB	N	C	
MSPRP5032BCZZ	24- 9	DC	AB	N	C	
MSPRP5037BCZZ	20- 23	DA	AA	N	C	
MSPRP5050BCZZ	21- 8	DN	AF	N	C	
MSPRP5053BCZZ	21- 28	DB	AB	N	C	
MSPRP5055BCZZ	21- 29	DE	AC	N	C	
MSPRP5061BCZZ	24- 25	DR	AG	N	C	
MSPRT5035BCZZ	20- 24	DB	AB	N	C	
MSPRT5040BCZZ	21- 51	DA	AA	N	C	
MSPRT5041BCZZ	21- 52	DB	AB	N	C	
MSPRT5042BCZZ	21- 53	DB	AB	N	C	
MSPRT5043BCZZ	21- 54	DB	AB	N	C	
MSPRT5045BCZZ	21- 30	DB	AB	N	C	
MSPRT5048BCZZ	20- 47	DB	AB	N	C	
MSPRT5049BCZZ	20- 48	DB	AB	N	C	
MSPRT5051BCZZ	21- 9	DB	AB	N	C	
MSPRT5054BCZZ	21- 10	DB	AB	N	C	
【N】						
NBRGF5020BCZZ	21- 11	DW	AH	N	C	
NBRGF5026BCZZ	20- 25	DG	AD	N	C	
NBRGZ5021BCZZ	21- 12	DV	AH	N	C	
NFANP5001BCZZ	23- 42			N	B	
NGERH5055BCZZ	20- 49	DE	AC	N	C	
NGERZ5050BCZZ	20- 26	DE	AC	N	C	
NGERZ5051BCZZ	20- 27	DF	AD	N	C	
NGERZ5053BCZZ	21- 31	DC	AB	N	C	
NRŌLM5025BCZZ	20- 50	DD	AC	N	C	

PARTS CODE	NO.	PRICE R.		NEW	P/R	
		Ja.	Ex.			
NRŌLP5021BCZZ	20- 29	DN	AF	N	C	
NRŌLP5022BCZZ	21- 55	DB	AB	N	C	
NRŌLR5020BCZZ	20- 30	GZ	BE	N	C	
NRŌLR5023BCZZ	20- 31	DZ	AK	N	C	
NRŌLR5024BCZZ	20- 32	DX	AK	N	C	
NSFTA5041BCZZ	20- 33	DT	AG	N	C	
NSFTA5042BCZZ	20- 59	DP	AF	N	C	
NSFTA5043BCZZ	20- 60	DC	AB	N	C	
NSFTP5040BCZZ	21- 32	DD	AC	N	C	
NSFTZ5040BCZZ	26- 3	DE	AC	N	C	
NSFTZ5044BCZZ	25- 3	DF	AD	N	C	
NSFTZ5045BCZZ	25- 4	DF	AD	N	C	
【P】						
PAJS—5010BCZZ	20- 34	DN	AF	N	C	
PBARM5010BCZZ	20- 35	EX	AR	N	C	
PBARM5011BCZZ	20- 36	EW	AR	N	C	
PBŌX—5010BCZZ	23- 11	DP	AF	N	C	
PCAPZ5011BCZZ	20- 63	DD	AC	N	C	
PCAPZ5012BCZZ	21- 56	DD	AC	N	C	
PCASZ5010BCZZ	21- 33	EA	AL	N	C	
PCLI—5010BCZZ	20- 37	DD	AC	N	C	
PCŌVM5016BCZZ	27- 1	ES	AQ	N	D	
〃	28- 1	ES	AQ	N	D	
PCŌVP5010BCZZ	21- 61	DD	AC	N	C	
PCŌVP5013BCZZ	23- 12	DH	AD	N	C	
PCŌVP5014BCZZ	23- 13	DC	AB	N	C	
PCŌVP5015BCZZ	23- 14	DW	AH	N	C	
PCŌVP5017BCZZ	23- 22	DA	AA	N	C	
PCŌVP5019BCZZ	21- 43	DD	AC	N	C	
PDMPZ5010BCZZ	20- 38	DB	AB	N	C	
PDMPZ5011BCZZ	24- 10	DB	AB	N	C	
PFILW5010BCZZ	26- 5	DV	AH	N	C	
PGIDM5010BCZZ	24- 11	DC	AB	N	D	
PGIDM5011BCZZ	21- 13	DE	AC	N	C	
PGIDM5012BCZZ	21- 14	DE	AC	N	C	
PGIDM5014BCZZ	21- 15	DU	AG	N	C	
PGUMM5010BCZZ	24- 12	DB	AB	N	C	
PGUMM5011BCZZ	20- 39	DC	AB	N	C	
PGUMM5012BCZZ	23- 15	DB	AB	N	C	
PGUMS2042SCZZ	23- 25	DR	AG		C	
PMAGE5010BCZZ	20- 51	DF	AD	N	C	
PRDAF5013BCZZ	23- 26	HN	BG	N	C	
PRDAF5014BCZZ	23- 27	FP	AV	N	C	
PRNGP5010BCZZ	20- 40	DE	AC	N	C	
PRNGP5012BCZZ	20- 10	DD	AC	N	C	
PSPAP5011BCZZ	21- 34	DA	AA	N	C	
PSPAP5012BCZZ	21- 35	DA	AA	N	C	
PSPAP5014BCZZ	21- 36	DB	AB	N	C	
PSPAP5018BCZZ	20- 69			N	C	
PSPAP5019BCZZ	20- 70			N	C	
PSPAP5020BCZZ	20- 71			N	C	
PSPAZ5015BCZZ	23- 16	DA	AA	N	C	
PSPAZ5016BCZZ	21- 16	DA	AA	N	C	
PSPF—5010BCZZ	24- 13	DF	AD	N	C	
PSPF—5011BCZZ	24- 14	DR	AG	N	C	
PSPF—5012BCZZ	24- 15	DK	AE	N	C	
PSPF—5013BCZZ	24- 16	DB	AB	N	C	
PSPF—5014BCZZ	24- 17	DK	AE	N	C	
PSPF—5015BCZZ	24- 18	DD	AC	N	C	
PSPF—5017BCZZ	24- 19	DJ	AE	N	C	
PTME—5010BCZZ	21- 37	DY	AK	N	C	
PTME—5011BCZZ	21- 38	DF	AD	N	C	
PTME—5013BCZZ	21- 39	DF	AD	N	C	
PWIR—5010BCZZ	20- 41	EA	AK	N	C	
PZETM2002SCZZ	23- 28	DL	AA		C	
【Q】						
QACCB7122QCZZ	23- 38		AX	N	B	
QACCB7123QCZZ	23- 38			N	B	
QACCD7413QCN1	23- 38		AQ	N	B	
QACCJ3419QCN1	23- 38	EC		N	B	
QACCL7420QCZZ	23- 38		AV	N	B	
QACCS7420QCZZ	23- 38		AT	N	B	
QACCV6420QCN1	23- 38		AV	N	B	
QBRSZ5010BCZZ	21- 40	EY	AR	N	C	
QCNCM5030BCZZ	21- 67	DB	AB	N	C	
QCNCM5031BCZZ	21- 68	DB	AB	N	C	
QCNCM5032BCZZ	21- 69	DB	AB	N	C	
QCNCM5033BCZZ	21- 70	DX	AH	N	C	
QCNCM5043BCZZ	21- 71	DS	AG	N	C	
QCNTF5010BCZZ	20- 52	DL	AE	N	C	

PARTS CODE	NO.	PRICE R.		NEW	P/R	
		Ja.	Ex.			
QCNW—0035FCN1	23- 38		AT	N	B	
QCNW—5071BCZZ	21- 65	FV	AX	N	C	
QCNW—5073BCZZ	21- 66	DT	AG	N	C	
QCNW—5074BCZZ	23- 23	EJ	AN	N	C	
QCNW—5076BCZZ	20- 68	EP	AP	N	C	
QCNW—5077BCZZ	20- 67	DN	AF	N	C	
QCNW—5078BCZZ	20- 53	DN	AF	N	C	
QCNW—5080BCZZ	23- 17	DH	AE	N	C	
QCNW—5081BCZZ	23- 18	DG	AD	N	C	
QCNW—5083BCZZ	23- 19	DK	AE	N	C	
QCNW—5084BCZZ	23- 20	DM	AE	N	C	
QCNW—5085BCZZ	25- 5	DG	AD	N	C	
〃	26- 4	DG	AD	N	C	
QCNW—5086BCZZ	23- 38			N	B	
QPWBE5011BCZZ	20- 54	DB	AB	N	C	
QPWBE5015BCZZ	21- 41	ED	AM	N	C	
QPWBN5013BCZZ	21- 72	EX	AR	N	C	
QSW—C1019CCN1	23- 39	DY			B	
QSW—C1071CCZZ	23- 39		AK		B	
QSW—C7230QCZZ	23- 39		AK	N	B	
QSW—M5010BCZZ	25- 6	DP	AF	N	C	
〃	26- 6	DP	AF	N	C	
QSW—M5013BCZZ	20- 66	EC	AL	N	B	
【R】						
RCŌRF2001SCZZ	23- 21	EC	AN		C	
RMŌTN5011BCZZ	20- 55	FS	AW	N	B	
RTRNP5011BCZZ	23- 37		BH	N	B	
RTRNP5012BCZZ	23- 37		BL	N	B	
RTRNP5013BCZZ	23- 37	HT		N	B	
【S】						
SPAKA5042BCZZ	27- 2	DZ	AK	N	D	
〃	28- 2	DZ	AK	N	D	
SPAKA5043BCZZ	27- 3	DZ	AK	N	D	
〃	28- 3	DZ	AK	N	D	
SPAKA5045BCZZ	27- 4	DG	AD	N	D	
〃	28- 4	DG	AD	N	D	
SPAKA5131BCZZ	27- 5	DB	AB	N	D	
〃	28- 5	DB	AB	N	D	
SPAKA5132BCZZ	27- 11			N	D	
〃	28- 11			N	D	
SPAKA5133BCZZ	27- 12			N	D	
〃	28- 12			N	D	
SPAKA5134BCZZ	27- 13			N	D	
〃	28- 13			N	D	
SPAKC5040BCZZ	27- 6		AW	N	D	
SPAKC5041BCZZ	28- 6		AW	N	D	
SPAKC5044BCZZ	27- 6	FS		N	D	
〃	28- 6	FS		N	D	
SSAKA2320QCZZ	27- 8	DA	AA		D	
〃	28- 8	DA	AA		D	
SSAKH1020CCZZ	27- 7	DA	AA		D	
〃	28- 7	DA	AA		D	
SSAKH3012KCZZ	27- 9	DH	AD		D	
〃	28- 9	DH	AD		D	
【T】						
TINSA5031BCZZ	27- 10		AS	N	D	
TINSA5032BCZZ	28- 10		AX	N	D	
TINSE5020BCZZ	27- 10		AN	N	D	
TINSE5023BCZZ	28- 10		AX	N	D	
TINSE5045BCZZ	23- 40		AT	N	D	
〃	23- 40		AT	N	D	
TINSE5046BCZZ	23- 41		AT	N	D	
TINSE5055BCZZ	23- 40	FG	AT	N	D	
TINSE5056BCZZ	23- 41	FG	AT	N	D	
TINSF5033BCZZ	27- 10		AT	N	D	
TINSF5034BCZZ	28- 10		AX	N	D	
TINSF5037BCZZ	27- 10		AW	N	D	
TINSF5038BCZZ	28- 10		AX	N	D	
TINSF5053BCZZ	23- 40		AT	N	D	
TINSF5054BCZZ	23- 41		AT	N	D	
TINSG5021BCZZ	27- 10		AT	N	D	
TINSG5022BCZZ	28- 10		AX	N	D	
TINSG5047BCZZ	23- 40		AT	N	D	
TINSG5048BCZZ	23- 41		AT	N	D	
TINSH5041BCZZ	27- 10		AT	N	D	
TINSH5042BCZZ	28- 10		AX	N	D	
TINSI5039BCZZ	27- 10		AT	N	D	
TINSI5040BCZZ	28- 10		AX	N	D	
TINSI5049BCZZ	23- 40		AT	N	D	
TINSI5050BCZZ	23- 41		AT	N	D	

PARTS CODE	NO.	PRICE R.		NEW	P/R	
		Ja.	Ex.			
TINSJ5029BCZZ	27- 10			N	D	
TINSJ5030BCZZ	28- 10	FU		N	D	
TINSS5035BCZZ	27- 10		AT	N	D	
TINSS5036BCZZ	28- 10		AX	N	D	
TINSZ5043BCZZ	27- 10		AT	N	D	
TINSZ5044BCZZ	28- 10		AX	N	D	
TINSZ5051BCZZ	23- 40		AT	N	D	
TINSZ5052BCZZ	23- 41		AT	N	D	
【X】						
XBPBZ40P08K00	23- 36	DA	AA		C	
XBPSD30P06K00	23- 29	DA	AA		C	
〃	25- 8	DA	AA		C	
〃	26- 8	DA	AA		C	
XBPSD30P08KS0	23- 34	DA	AA		C	
XBPSD30P08K00	23- 30	DA	AA		C	
XBPSD30P16K00	23- 31	DA	AA		C	
XBPSD30P23000	26- 9	DA	AA		C	
XBPSD40P08KS0	22-C01	DA	AA		C	
〃	25- 9	DA	AA		C	
〃	26- 10	DA	AA		C	
XBPSD40P10KS0	23- 32	DA	AA		C	
〃	24- 24	DA	AA		C	
XBPSD40P14KS0	23- 33	DA	AA		C	
XBTSD20P08000	25- 7	DA	AA		C	
〃	26- 7	DA	AA		D	
XCPSC26P06000	22-G03	DA	AA		C	
XCPSC26P08000	22-G01				C	
XCPSC30P06000	22-G04				C	
XCPSC30P08000	22-G02	DA	AA		C	
XCPSD30P08000	25- 10	DA	AA		C	
〃	26- 11	DA	AA		C	
XCPSD30P10000	24- 23	DA	AA		C	
XNESD50—40000	22-D01	DA	AA		C	
XRESJ15—04000	22-A01	DA	AA		C	
XRESJ20—04000	22-A02	DB	AA		C	
XRESJ30—06000	22-A03	DA	AA		C	
〃	24- 22	DA	AA		C	
XRESJ40—06000	22-A04	DB	AA		C	
XRESJ50—06000	22-A05	DA	AA		C	
XVPSD30P06000	23- 35	DA	AA		C	
XWSSD50—13000	22-E01	DA	AA		C	
XXXSP30L08000	22-F02	DB	AB		C	
XXXSP30L10000	22-F01	DB	AB		C	
XXXSP40L08000	22-F03	DB	AB		C	
【0】						
00PZX400KBD47	25-B00		BZ	N	E	
00PZX400KBD48	25-B00		BZ	N	E	
00PZX500KBD47	26-C00		BZ	N	E	
00PZX500KBD48	26-C00		BZ	N	E	

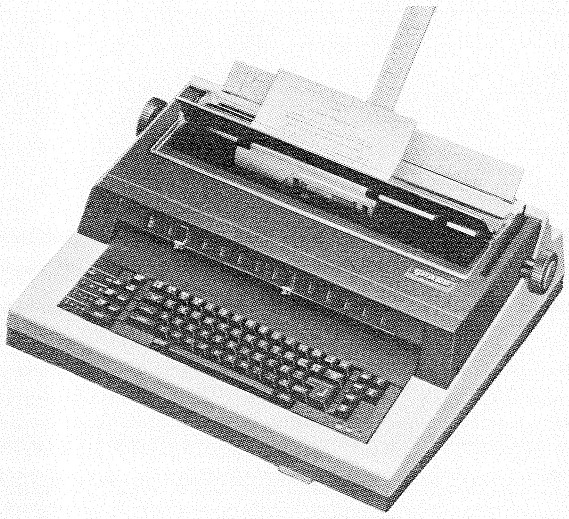
PARTS CODE	NO.	PRICE R.		NEW	P/R	
		Ja.	Ex.			

[redacted]
ZX400/500

SHARP SERVICE MANUAL

SHAR-02879

CODE：00ZM092ETSM2B



ELECTRONIC TYPEWRITERS

No. 2

MODEL ZX-400/ZX-500

CONTENTS

Ⅰ. CIRCUIT DESCRIPTIONS
Ⅱ. SCHEMATIC DRAWINGS & PARTS LOCATION DIAGRAMS
Ⅲ. WIRING DIAGRAMS & CONNECTOR SIGNAL NAME
Ⅳ. PARTS LIST

SHARP CORPORATION

INTRODUCTION

This service manual is designed to assit the service technician in the repair the ZX series typewriters. It contains the information nessesary to repair the PC boards (PWB).

For board repair, please refer to the Sharp policies and Procedures manual

This service manual No.2 contains four sections:
Section 1 ...... Circuit descriptions
Section 2 ...... Schematic drawings & Parts location diagrams
Section 3 ...... Wiring diagrams & connector signal name
Section 4 ...... Parts list (PWB)

For mechanical descriptions and keyboard parts guide, please refer to the seperrately available following service manuals;

1. Manual No. 00ZM091ETSM1A (No.1)	1. Mechanical assemblies descritpons, removal, disassembly and assembly 2. Electronic board descriptions, removal, desassembly and assembly 3. Ajustments 4. Parts guide (mechanical parts)
2. Manual No. 00ZM094ETSM3A (No.3)	Keyboard Parts Guide
3. Manual No. 00ZM097ETSM4A (No.4)	1. Adjustments 2. Lubrications 3. Troubleshooting

I. CIRCUIT DESCRIPTIONS

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1. BLOCK DIAGRAM

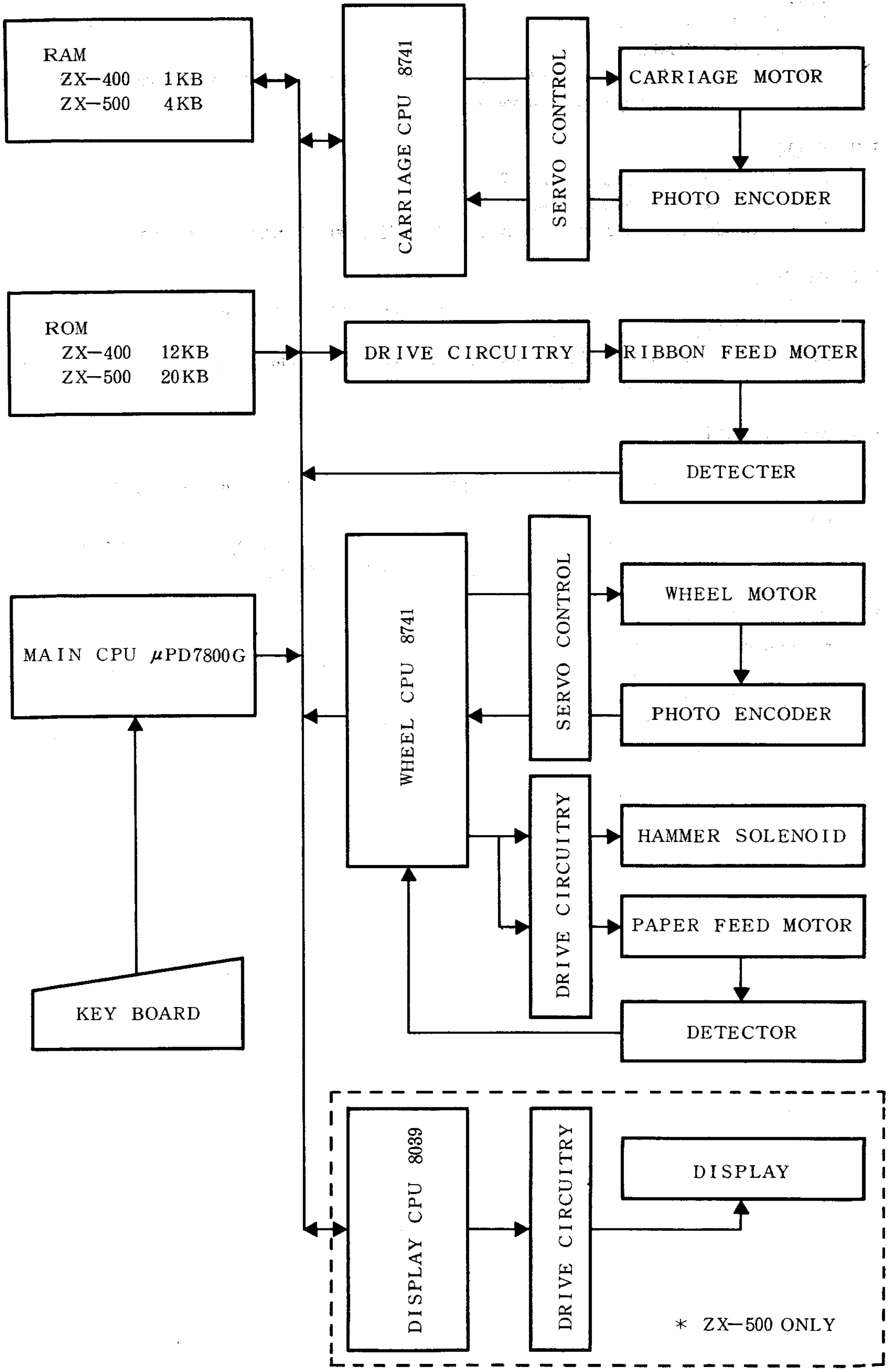

RAM
ZX–400 1KB
ZX–500 4KB
ROM
ZX–400 12KB
ZX–500 20KB
MAIN CPU μPD7800G
KEY BOARD
CARRIAGE CPU 8741
SERVO CONTROL
CARRIAGE MOTOR
PHOTO ENCODER
DRIVE CIRCUITRY
RIBBON FEED MOTER
DETECTER
WHEEL CPU 8741
SERVO CONTROL
WHEEL MOTOR
PHOTO ENCODER
DRIVE CIRCUITRY
HAMMER SOLENOID
PAPER FEED MOTOR
DETECTOR
DISPLAY CPU 8039
DRIVE CIRCUITRY
DISPLAY
* ZX–500 ONLY

Fig. 1

1-1. Main CPU

UPD7800, with internal 128-byte RAM

1-2. ROM

ZX-400: 4KB ROM x 3
ZX-500: 4KB ROM x 5
Among these ROM's, a 4KB ROM is used for the key table and display message for both ZX-400 and ZX-500. It must be exchanged depending on language.

1-3. RAM

ZX-400: 1K x 4-bit CMOS RAM x 2
ZX-500: 2K x 8-bit CMOS RAM x 2
For the ZX-500 only, two kinds of option RAM's (8KB and 16KB) are available.

1-4. Keyboard

ZX-400: Either 47 or 48 typing keys are available according to language.
22 function keys are used.
ZX-500: Either 47 or 48 typing keys are available according to language.
29 function keys are used.

1-5. Servo circuit

Carriage:
UPD8741A (with internal EPROM) is used for the CPU, and L290, L291, and L292 are used for control IC's.

Printwheel:
UPD8741A (with internal EPROM) is used for the CPU, and L290, L291, and L292 are used for control IC's.
Same program control system is used for both ZX-400 and ZX-500.

1-6. Display (ZX-500 only)

Fluorescent display tube:
5 x 12 dots, 32 digits, with cursor.
8039 is used for the CPU.
Replaceable 4KB ROM is used for the character generator.
8255 is used for I/O port.

2. ROM & ADDRESS ALLOCATION

2-1. ROM map (General)

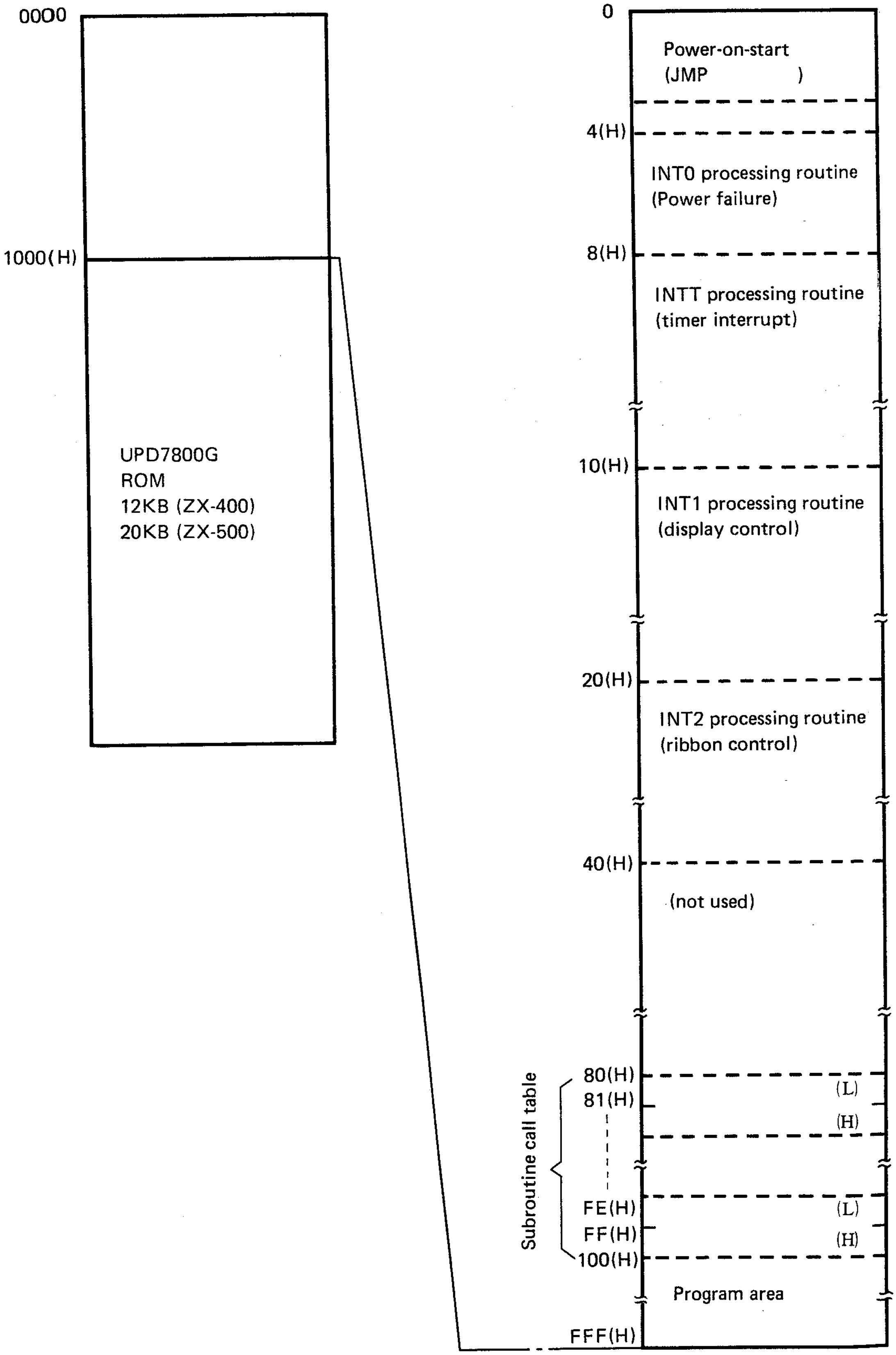

0000
1000(H)
UPD7800G
ROM
12KB (ZX-400)
20KB (ZX-500)
0
Power-on-start
(JMP)
4(H)
INT0 processing routine
(Power failure)
8(H)
INTT processing routine
(timer interrupt)
10(H)
INT1 processing routine
(display control)
20(H)
INT2 processing routine
(ribbon control)
40(H)
(not used)
80(H)
81(H)
(L)
(H)
FE(H)
FF(H)
(L)
(H)
100(H)
Program area
FFF(H)
Subroutine call table

Fig. 2

2-2. Address allocation

ZX-400

Address	Allocation
0000(H)	4K ROM0 (program)
1000(H)	4K ROM1 (Program)
2000(H)	4K ROM2 (Key table, tables)
3000(H)	4K EXT-ROM
80XX(H)	Printwheel CPU select
82XX(H)	Carriage CPU select
8EXX(H)	Status read
9000(H)	1K RAM

Table 1

ZX-500

Address	Allocation
000(H)	4K ROM0 (Program)
1000(H)	4K ROM1 (Program)
2000(H)	4K ROM2 (Program)
3000(H)	4K ROM3 (Program)
4000(H)	4K ROM4 (Key table, tables)
5000(H)	4K ROM5 (Not used)
6000(H)	4K EXT-RSM
80XX(H)	Printwheel CPU select
82XX(H)	Carriage CPU select
8EXX(H)	Status read
9000(H)	4K RAM
A000(H)	Option RAM 8K, 16K

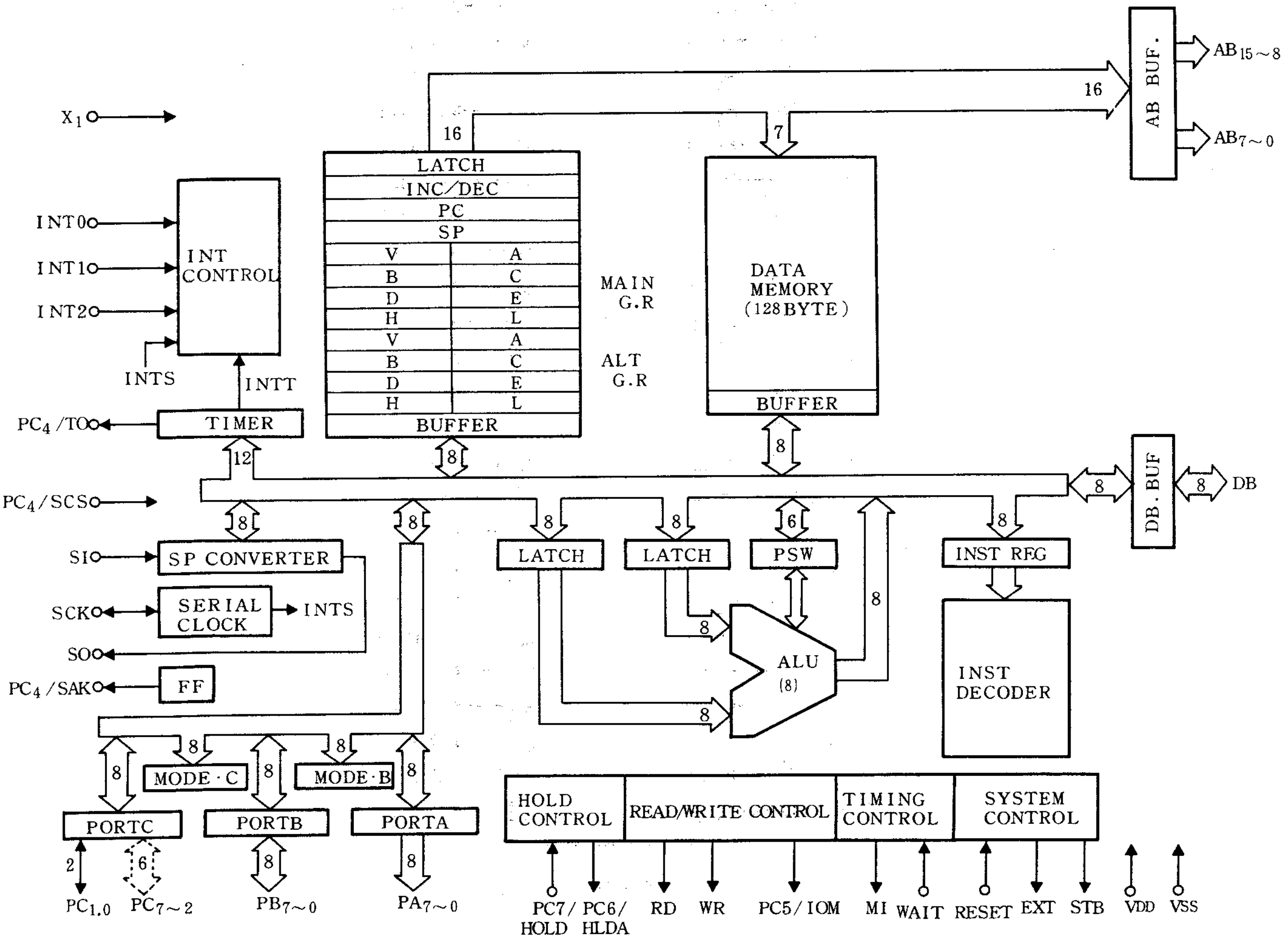
Table 2

3. CPU,ROM AND RAM DESCRIPTION

3-1. Main CPU (UPD7800G)

The main CPU used for this sytem is a UPD7800G which is a single chip 8-bit Microprocessor.
It uses a single-phase external clock of 1.5MHz (ZX-400) or 2MHz (ZX-500).
The CPU is controlled by a micro program (firmware) stored in EPROM. The program capacity is 12KB for the ZX-400 and 24KB for the ZX-500. In addition, the ZX-400 has 1KB of RAM and the ZX-500 has 4K bytes.
CMOS RAM is used for storage of line format, glossary (ZX-500 only), correction memory and system memory.
The keyboard and ribbon motor are controlled through the internal I/O port of the CPU.

3-1-1. Block diagram



X1
INT0
INT1
INT2
INTS
INT CONTROL
INTT
PC4/TO
TIMER
12
PC4/SCS
SI
SP CONVERTER
SCK
SERIAL CLOCK
INTS
SO
PC4/SAK
FF
16
LATCH
INC/DEC
PC
SP
V A
B C
D E
H L
V A
B C
D E
H L
MAIN G.R
ALT G.R
BUFFER
7
DATA MEMORY (128BYTE)
BUFFER
16
AB BUF.
AB15~8
AB7~0
DB. BUF
DB
8
LATCH
LATCH
PSW
6
INST REG
ALU (8)
INST DECODER
MODE·C
MODE·B
PORTC
PORTB
PORTA
PC1,0
PC7~2
PB7~0
PA7~0
HOLD CONTROL
READ/WRITE CONTROL
TIMING CONTROL
SYSTEM CONTROL
PC7/HOLD
PC6/HLDA
RD
WR
PC5/IOM
MI
WAIT
RESET
EXT
STB
VDD
VSS

Fig. A

3-1-2. Pin configuration

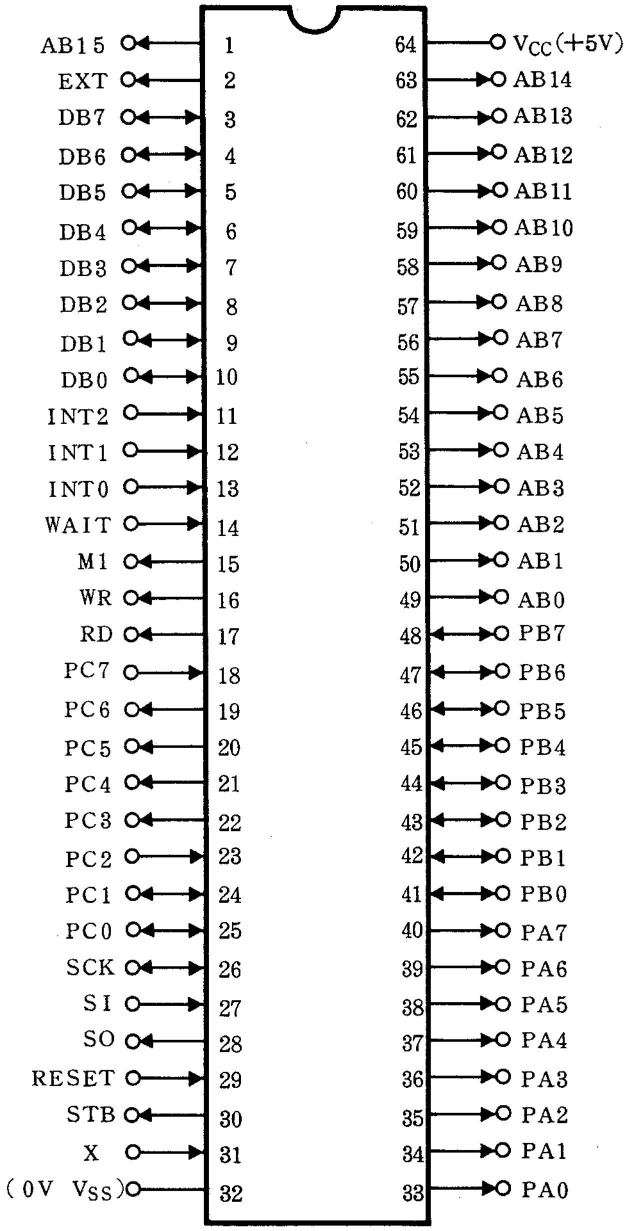

AB15 1
EXT 2
DB7 3
DB6 4
DB5 5
DB4 6
DB3 7
DB2 8
DB1 9
DB0 10
INT2 11
INT1 12
INT0 13
WAIT 14
M1 15
WR 16
RD 17
PC7 18
PC6 19
PC5 20
PC4 21
PC3 22
PC2 23
PC1 24
PC0 25
SCK 26
SI 27
SO 28
RESET 29
STB 30
X 31
(0V Vss) 32
33 PA0
34 PA1
35 PA2
36 PA3
37 PA4
38 PA5
39 PA6
40 PA7
41 PB0
42 PB1
43 PB2
44 PB3
45 PB4
46 PB5
47 PB6
48 PB7
49 AB0
50 AB1
51 AB2
52 AB3
53 AB4
54 AB5
55 AB6
56 AB7
57 AB8
58 AB9
59 AB10
60 AB11
61 AB12
62 AB13
63 AB14
64 Vcc(+5V)

Fig. B

3-1-3. Signal descriptions

Pin No.	CPU name	Signal name	In/Out	Description	Function
1	AB15	AB15	Output (tri-state)	Address bus AB15: MSB AB 0: LSB	1. Memory addresses from 0 to 65, 407. 2. The high order four bits (AB15~12) are the decoder input for RAM or ROM chip select. 3. Three bits (AB11~AB9) are the peripheral group select decoder input.
63	AB14	AB14			
62	AB13	AB13			
61	AB12	AB12			
60	AB11	AB11			
59	AB10	AB10			
58	AB 9	AB 9			
57	AB 8	AB 8			
56	AB 7	AB 7			
55	AB 6	AB 6			
54	AB 5	AB 5			
53	AB 4	AB 4			
52	AB 3	AB 3			
51	AB 2	AB 2			
50	AB 1	AB 1			
49	AB 0	AB 0			
3	DB 7	DB 7	Input/Output	Data bus	Bidirectional bus for data transfer between external memory, I/O, and accumulator.
4	DB 6	DB 6			
5	DB 5	DB 5			
6	DB 4	DB 4			
7	DB 3	DB 3			
8	DB 2	DB 2			
9	DB 1	DB 1			
10	DB 0	DB 0			
14	$\overline{\text{WAIT}}$	–	–	–	Not used
15	M1	M1	Output	Machine cycle 1	For check
26	$\overline{\text{SCK}}$	–	–	–	Not used
27	SI	–	–	–	Not used
28	SO	–	–	–	Not used
16	$\overline{\text{WR}}$	$\overline{\text{WR}}$	Output	White strobe	Write operation in the memory or I/O mode.
17	$\overline{\text{RD}}$	$\overline{\text{RD}}$	Output	Read strobe	Read operation in the memory or I/O operation.
31	X1	XCLK	Input	X'tal clock 1	UPD7800G CPU clock ZX-400: 1.5MHz ZX-500: 2MHz
30	STB(X2)	XCLK	Input	X'tal clock 2	Open and not used for UPD7800G CPU
40	PA7	PROTECT	Output	Memory protect	For memory protection
39	PA6	BUZZER	Output	Buzzer	For buzzer
38	PA5	R FOWD R DRIVE	Output	Ribbon forward Ribbon drive	ZX-400: For forward ribbon motor drive ZX-500: For ribbon motor drive
37	PA4	R REVS R SIGN	Output	Ribbon reverse Ribbon sign	ZX-400: For reverse ribbon motor drive ZX-500: For directing ribbon motor driving direction
36	PA3	SL3	Output	Key scan line	Key scan signal
35	PA2	SL2			
34	PA1	SL1			
33	PA0	SL0			

Pin No.	CPU name	Signal name	In/Out	Description	Function
48	PB7	RL7	Input	Key return line	Key return signal
47	PB6	RL6			
46	PB5	RL5			
45	PB4	RL4			
44	PB3	RL3			
43	PB2	RL2			
42	PB1	RL1			
41	PB0	RL0			
18	PC7	LFSW	Input	Line feed switch	Paper feed switch
19	PC6	$\overline{\text{RRDY}}$	Output	Ribbon ready	Ribbon ready for operation
20	PC5	–	–	–	Not used
21	PC4	–	–	–	Not used
22	PC3	–	–	–	Not used
23	PC2	RZ	Input	Ribbon position 0°	Ribbon home position
24	PC1	R180	Input	Ribbon position 180°	Correct ribbon lift off position
25	PC0	R90	Input	Ribbon position 90°	Ribbon feed position
13	INT0	POFF	Input	Power off	Power feed position
12	INT1	–	Input	–	Not used
11	INT2	RINT	Input	Ribbon interrupt	Ribbon shift cam displacement detect.
29	RESET	$\overline{\text{RESET}}$	Input	RESET	Reset signal
2	$\overline{\text{EXT}}$	–	–	–	Not used
32	GND		Input	Power supply	GND (0V)
64	Vcc		Input	Power supply	+5V

Table 3

3-2. ROM (EPROM)

The block diagram of the EPROM used for the ZX-400 and ZX-500 is shown in figure 3 and its pin configuration is shown in Fig. 4.

3-2-1. Block diagram

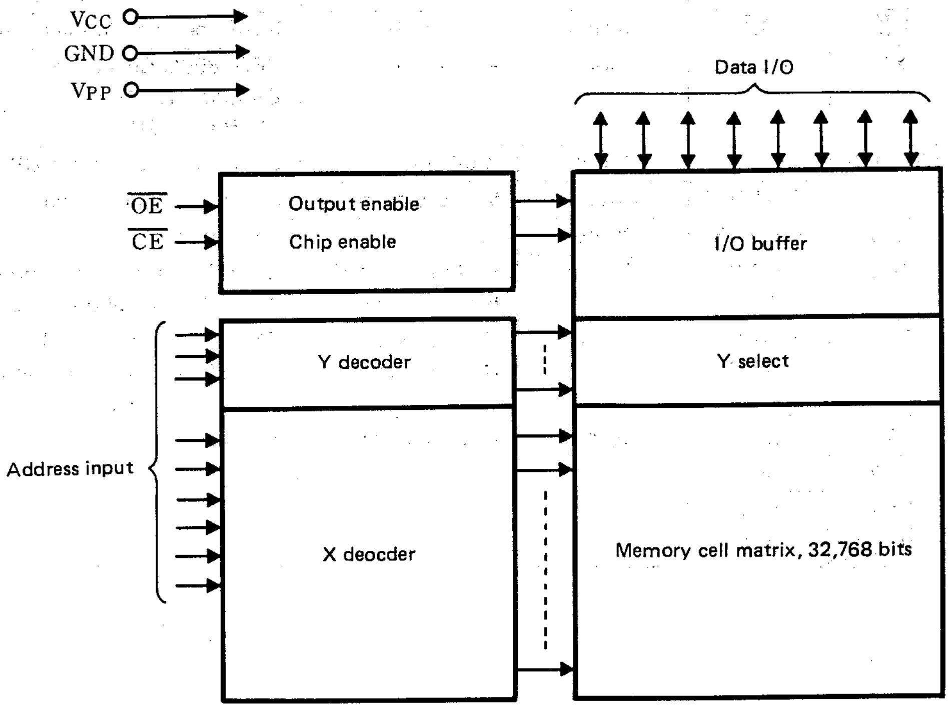

Vcc
GND
VPP
Data I/O
$\overline{\text{OE}}$
$\overline{\text{CE}}$
Output enable
Chip enable
I/O buffer
Y decoder
Y select
Address input
X deocder
Memory cell matrix, 32,768 bits

Fig. 3

3-2-2. Pin configuration (Top View)

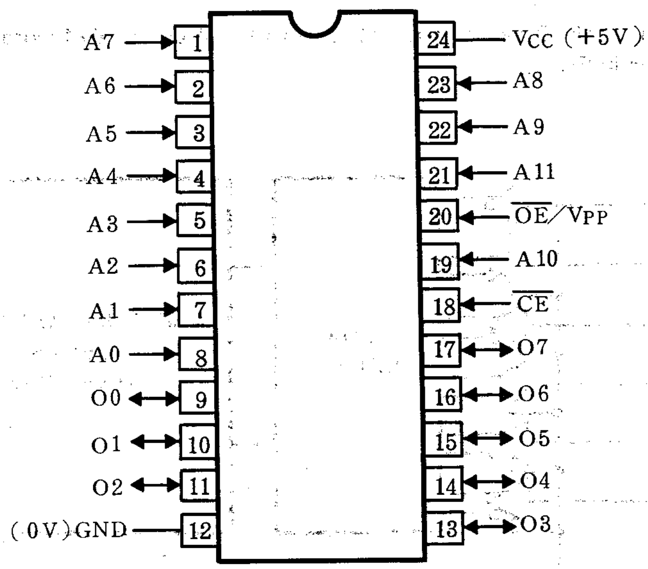

A7
A6
A5
A4
A3
A2
A1
A0
O0
O1
O2
(0V) GND
1
2
3
4
5
6
7
8
9
10
11
12
24
23
22
21
20
19
18
17
16
15
14
13
Vcc (+5V)
A8
A9
A11
$\overline{OE}$/VPP
A10
$\overline{CE}$
O7
O6
O5
O4
O3

Fig. 4

A0 ~ A11: Address
$\overline{OE}$/VPP: Output enable/VPP
O0 ~ O7: Data input/output
$\overline{CE}$: Chip enable

3-2-3. Timing chart (read mode)

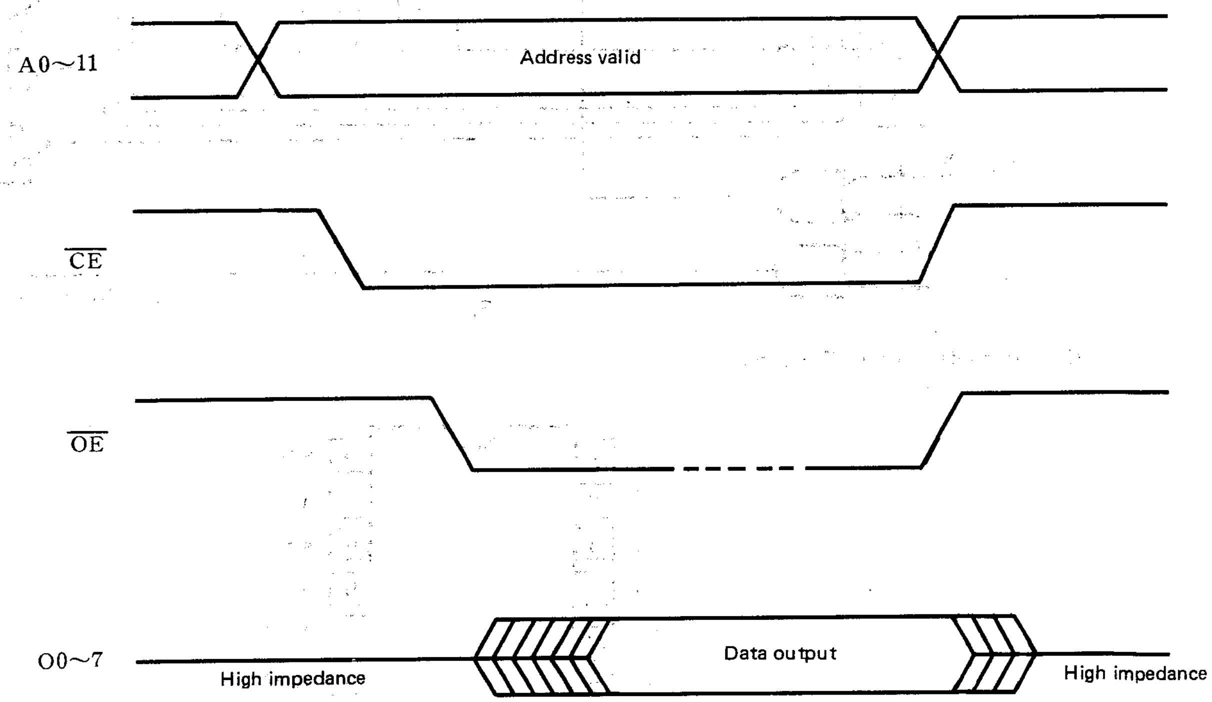

A0~11
Address valid
$\overline{CE}$
$\overline{OE}$
O0~7
High impedance
Data output
High impedance

Fig. 5

3-3. RAM

3-3-1. ZX-400

CMOS RAM is used for the ZX-400. It is TTL compatible, 4 bits x 1024 words. A block diagram is shown in Fig. 6, and pin configuration in Fig. 7.

(1) Block diagram

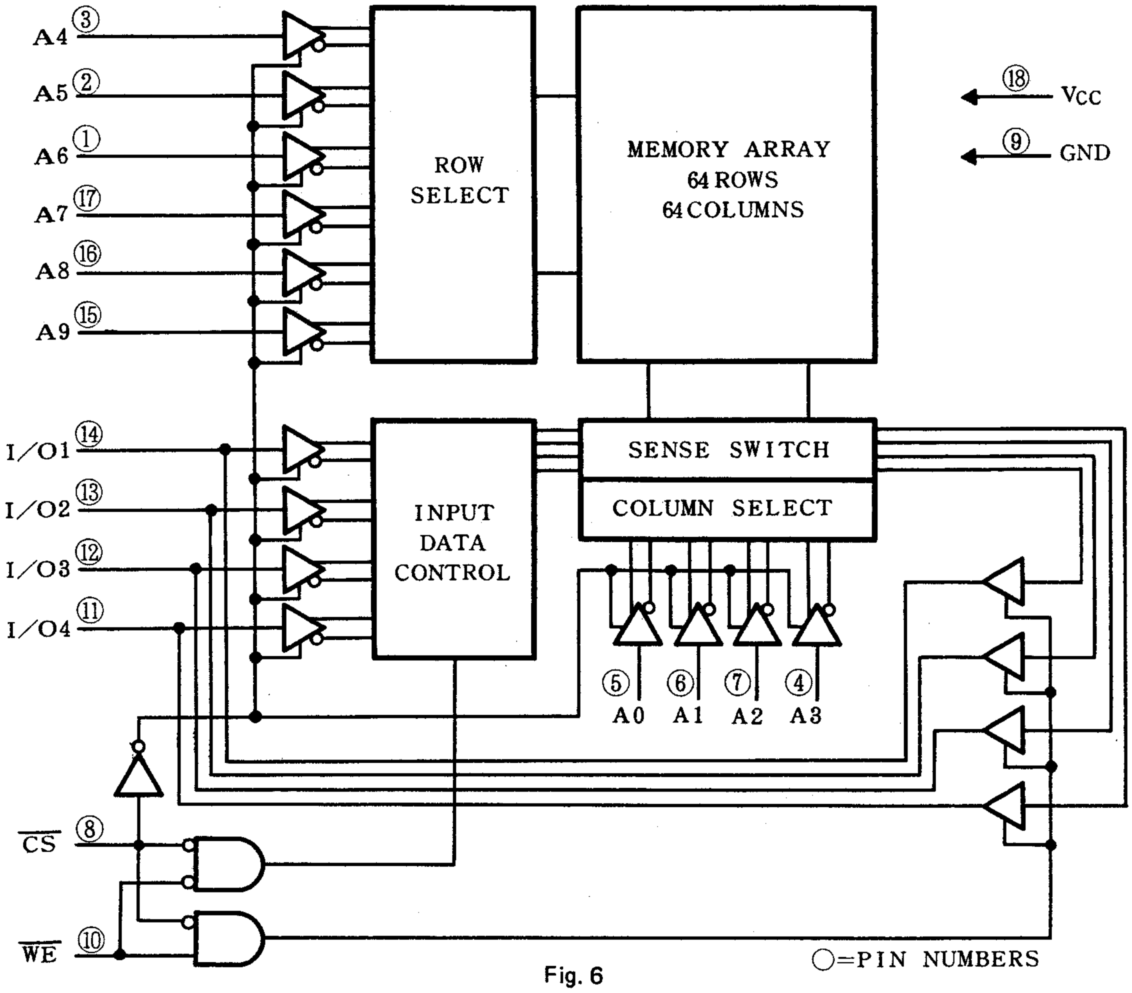

A4 ③
A5 ②
A6 ①
A7 ⑰
A8 ⑯
A9 ⑮
ROW SELECT
MEMORY ARRAY
64 ROWS
64 COLUMNS
⑱ Vcc
⑨ GND
I/O1 ⑭
I/O2 ⑬
I/O3 ⑫
I/O4 ⑪
INPUT DATA CONTROL
SENSE SWITCH
COLUMN SELECT
⑤ A0
⑥ A1
⑦ A2
④ A3
CS ⑧
WE ⑩
○=PIN NUMBERS

Fig. 6

(2) Pin configuration (Tio View)

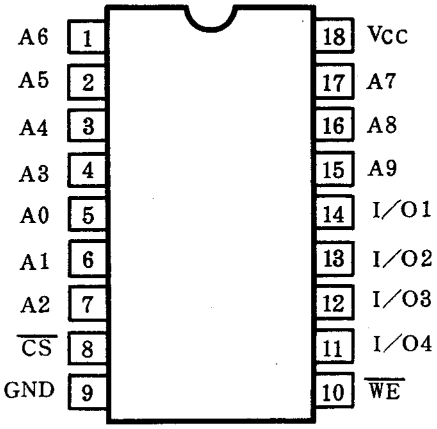

A6 1
A5 2
A4 3
A3 4
A0 5
A1 6
A2 7
CS 8
GND 9
18 Vcc
17 A7
16 A8
15 A9
14 I/O1
13 I/O2
12 I/O3
11 I/O4
10 WE

Fig. 7

(3) Read cycle timing chart

Read cycle timing chart is shown in Fig. 8, and write cycle timing chart in Fig. 9.

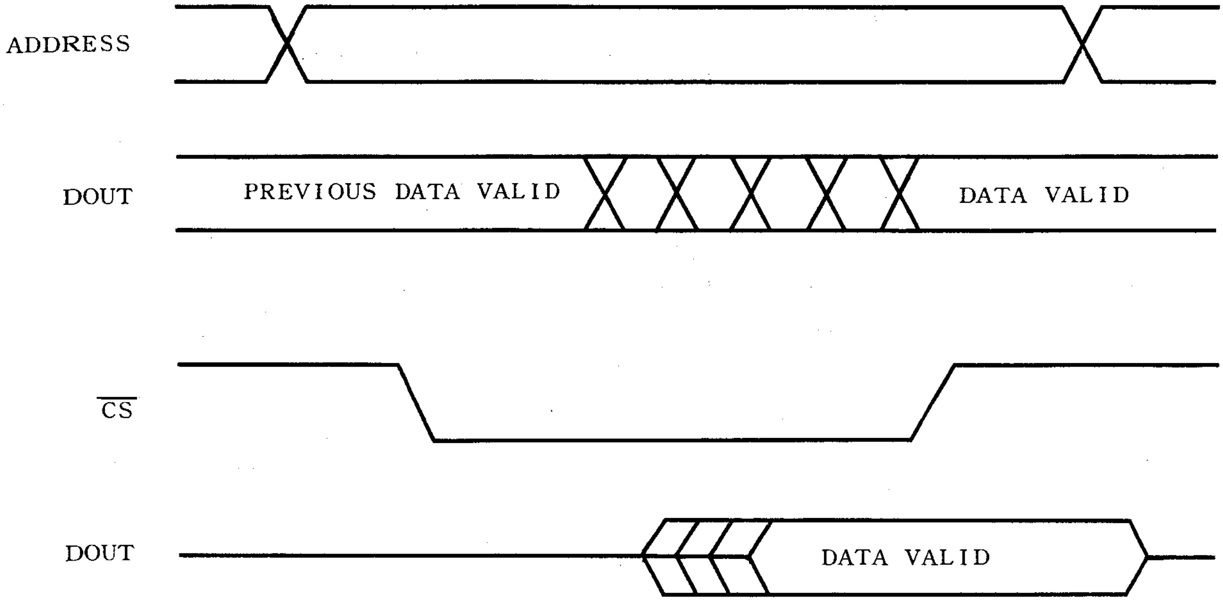

ADDRESS
DOUT
PREVIOUS DATA VALID
DATA VALID
CS
DOUT
DATA VALID

Fig. 8 Read Cycle Timing

(4) Write cycle timing charg

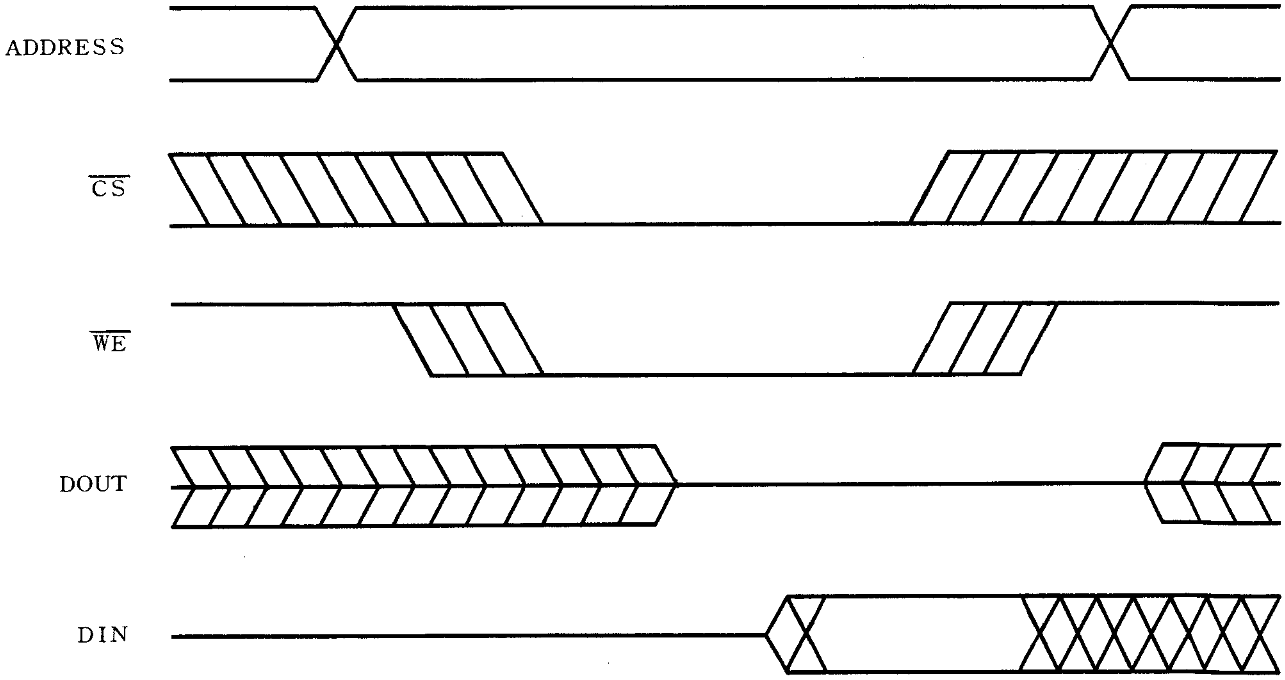

ADDRESS
CS
WE
DOUT
DIN

Fig. 9 Write Cycle Timing

3-3-2. ZX-500

24-pin package, 2048 words x 8 bits, CMOS RAM is used for the ZX-500. A block diagram is shown in Fig. 10.

(1) Block diagram am

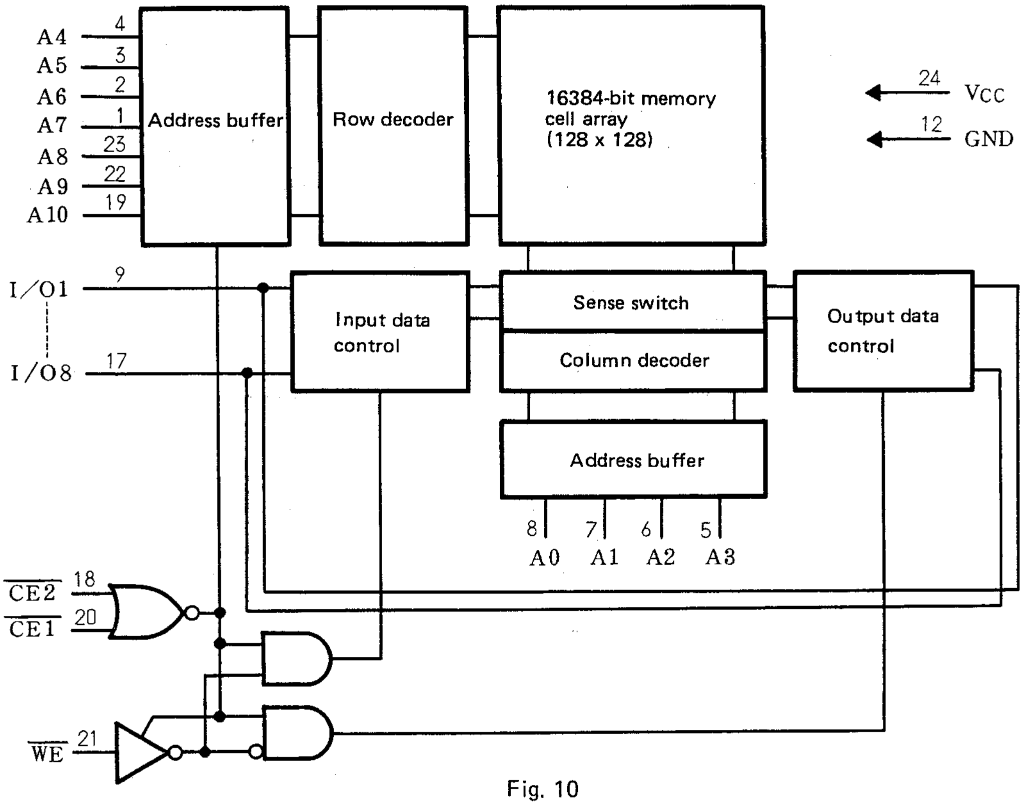
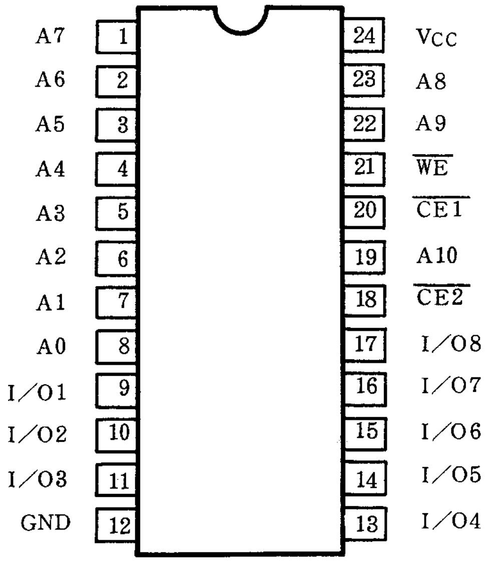

A4 4
A5 3
A6 2
A7 1
A8 23
A9 22
A10 19
Address buffer
Row decoder
16384-bit memory cell array (128 x 128)
24 Vcc
12 GND
I/O1 9
I/O8 17
Input data control
Sense switch
Column decoder
Output data control
Address buffer
8 7 6 5
A0 A1 A2 A3
$\overline{CE2}$ 18
$\overline{CE1}$ 20
$\overline{WE}$ 21

Fig. 10

(2) Pin configuration (Top View)


A7 1
A6 2
A5 3
A4 4
A3 5
A2 6
A1 7
A0 8
I/O1 9
I/O2 10
I/O3 11
GND 12
24 Vcc
23 A8
22 A9
21 $\overline{WE}$
20 $\overline{CE1}$
19 A10
18 $\overline{CE2}$
17 I/O8
16 I/O7
15 I/O6
14 I/O5
13 I/O4

$A_0 \sim A_{10}$: Address input
$I/O_1 \sim I/O_8$: Data I/O
CE_1, CE_2: Chip enable input, 1 and 2
WE: Write enable input
V_{CC}: +5V supply
GND: Ground

Fig. 11

(3) Operational modes

Operational modes of this RAM are as follows:

Operational modes

$\overline{CE1}$	$\overline{CE2}$	$\overline{WE}$	Chip	Output state
X	H	X	Non-select	High impedance
H	L	X		
L	L	H	Read	D_{OUT}
L	L	L	Write	D_{IN}

Table 4

(4) Read cycle timing (1)

Fig. 12 shows the read timing, and Fig. 13 shows the write cycle timing.

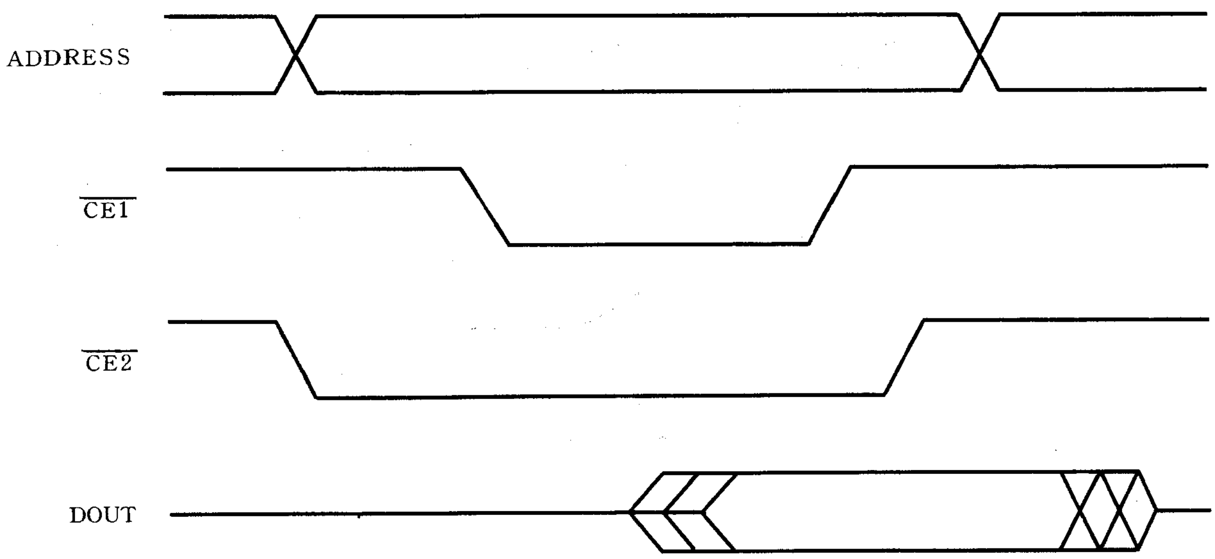

ADDRESS
CE1
CE2
DOUT

Fig. 12 Read Cycle Timing

(5) Write cycle timing

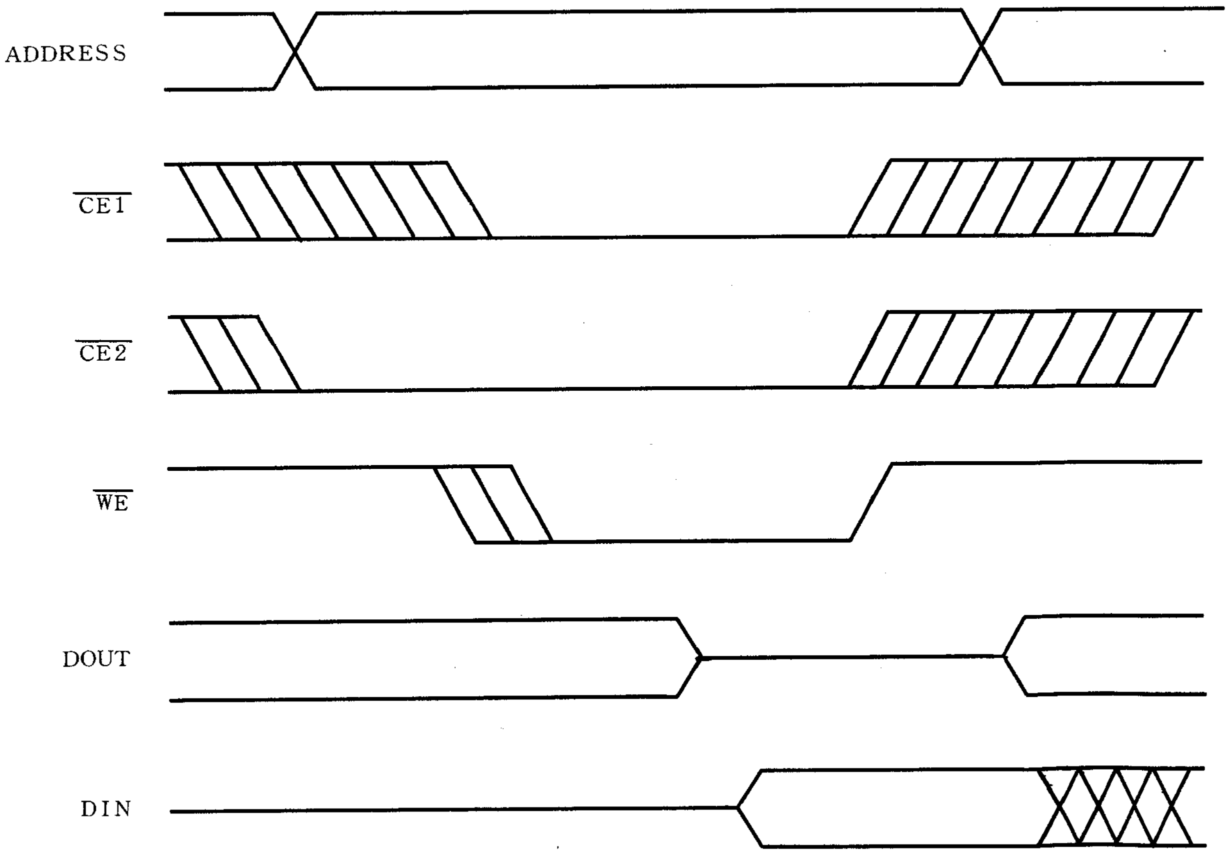

ADDRESS
CE1
CE2
WE
DOUT
DIN

Fig. 13 Write Cycle Timing

4. OSCILLATOR CIRCUIT

4-1. ZX-400

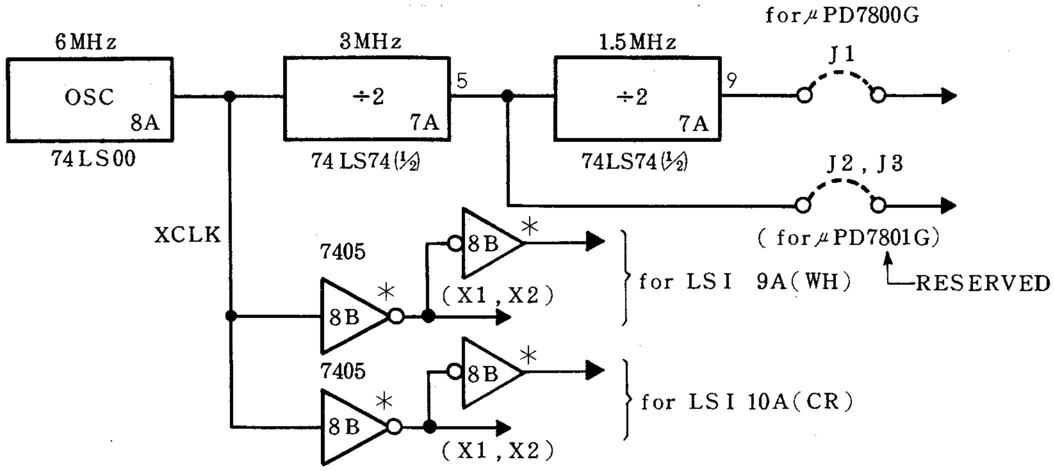

6MHz
OSC
8A
74LS00
3MHz
÷2
7A
74LS74(½)
5
1.5MHz
÷2
7A
74LS74(½)
9
for μPD7800G
J1
J2, J3
(for μPD7801G)
RESERVED
XCLK
7405
8B
*
(X1, X2)
for LSI 9A(WH)
for LSI 10A(CR)

Fig. 14

The configuration of the oscillator circuit used for the ZX-400 is shown in Fig. 14.
The basic oscillator circuit consists of the crystal oscillator and the 74LS00 which generates an oscillation frequency of 6MHz. This is supplied to the X1 and X2 terminals of two slave CPU 8741's via the 7405 buffers. The 6MHz frequency is also supplied to the 74LS74's and is divided by 4 to produce a frequency of 1.5MHz. This is supplied to the X1 terminal of the UPD7800G Main CPU. Jumper wire J1 should be installed and jumper wires J2 and J3 should not be installed if the 7800G CPU is used.
Jumper wires J2 and J3 should be installed and J1 cut if the 7801G CPU is used.

CPU	J1	J2	J3	Note
7800G	ON	CUT	CUT	
7801G	CUT	ON	ON	Reserved

4-2. ZX-500

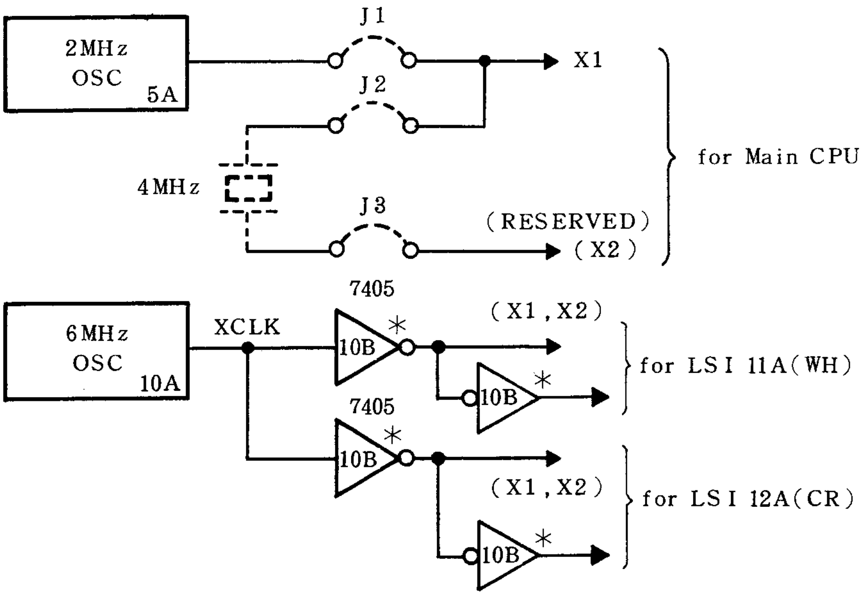

2MHz
OSC
5A
J1
J2
X1
4MHz
J3
(RESERVED)
(X2)
for Main CPU
6MHz
OSC
10A
XCLK
7405
10B
*
(X1, X2)
for LSI 11A(WH)
for LSI 12A(CR)

Fig. 15

Fig. 15 shows the configuration of the oscillator circuit for the ZX-500.
A 2MHz and a 6MHz crystal oscillator is used for the ZX-500. The 2MHz oscillator is connected to the X1 terminal of the UPD7800G Main CPU. The 6MHz output is supplied to the X1 and X2 terminals of two 8471 slave CPU's via 7405 buffers.
When the UPD 7801G is used as the main CPU, a 4MHz crystal is externary connected.

CPU	J1	J2	J3	Note
7800G	ON	CUT	CUT	
7801G	CUT	ON	ON	Reserved

5. CHIP SELECT

5-1. ZX-400

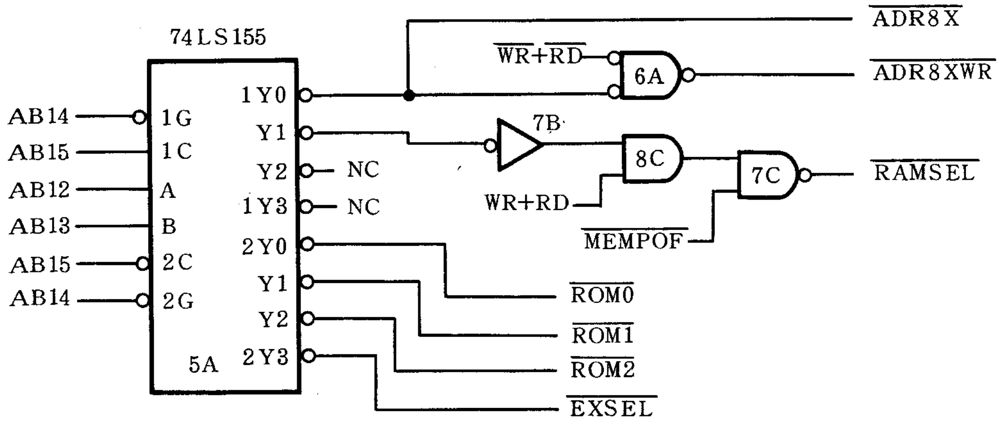

74LS155
AB14
AB15
AB12
AB13
AB15
AB14
1G
1C
A
B
2C
2G
5A
1Y0
Y1
Y2
1Y3
2Y0
Y1
Y2
2Y3
NC
NC
WR+RD
6A
7B
8C
7C
WR+RD
MEMPOF
ADR8X
ADR8XWR
RAMSEL
ROM0
ROM1
ROM2
EXSEL

Fig. 16

The ROM/RAM chip select signal is decoded by the 74LS155 as shown in Fig. 16

The outputs 2Y0 thru 2Y3 are used for ROM select, and the output from 1Y1 is for RAM select, and the output 1Y0 is for peripheral select. The table below summarizes these functions:

Address				Signal name	Function
A15	A14	A13	A12		
0	0	0	0	$\overline{\text{ROM 0}}$	Program selection
0	0	0	1	$\overline{\text{ROM 1}}$	
0	0	1	0	$\overline{\text{ROM 2}}$	Tables selection
0	0	1	1	EXSEL	For checker
1	0	0	0	ADR8X, ADR8XWR	Peripheral selection
1	0	0	1	$\overline{\text{RAMSEL}}$	RAM selection
1	0	1	0	Not used	–
1	0	1	1	Not used	–

Table 5

The peripheral select circuit is shown in Fig. 17.

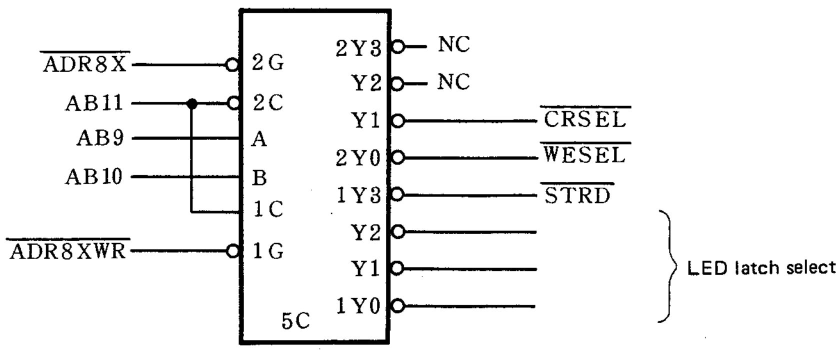

74LS155
ADR8X
AB11
AB9
AB10
ADR8XWR
2G
2C
A
B
1C
1G
5C
2Y3
Y2
Y1
2Y0
1Y3
Y2
Y1
1Y0
NC
NC
CRSEL
WESEL
STRD
LED latch select

Fig. 17

Peripheral select is achieved by $\overline{\text{ADR8X}}$ and $\overline{\text{ADR8XWR}}$. Both signals are created in the circuit shown in Fig. 17 $\overline{\text{ADR8X}}$ is the address decoded signal itself, but $\overline{\text{ADR8XWR}}$ contains the READ signal ($\overline{\text{RD}}$) and WRITE signal ($\overline{\text{WR}}$) in addition to ADR8X. The signal $\overline{\text{CRSEL}}$ is supplied to $\overline{\text{CS}}$ of the 8741 Slave CPU to achieve carriage control. The signal $\overline{\text{WESEL}}$ is supplied to $\overline{\text{CS}}$ of the 8741 Slave CPU for printwheel control.

The signal decoded by means of $\overline{\text{ADR8XWR}}$ becomes the clock and consists of three latch circuits of the 74LS273 and 74LS175. Latch output is connected to the LED on the keyboard via the 7406 driver.
The signal $\overline{\text{STRD}}$ is used to read the status signal.

Address							Signal name	Function
A15	A14	A13	A12	A11	A10	A9		
1	0	0	0	0	0	0	$\overline{\text{WESEL}}$	Selection of slave CPU for wheel
				0	0	0	$\overline{\text{CRSEL}}$	Selection of slave CPU for carriage
				0	1	0	Not used	–
				0	1	1	Not used	–
				1	0	0	To LS273 (2D)	Latch signal for LED's
				1	0	1	To LS175 (2C)	
				1	1	0	To LS273 (2E)	
				1	1	1	$\overline{\text{STRD}}$	Status read enable

Table 6

5-2. ZX-500

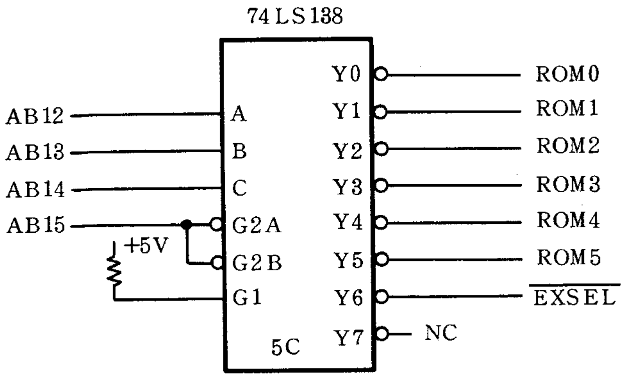

74 LS 138
AB12
AB13
AB14
AB15
+5V
A
B
C
G2A
G2B
G1
5C
Y0
Y1
Y2
Y3
Y4
Y5
Y6
Y7
ROM0
ROM1
ROM2
ROM3
ROM4
ROM5
EXSEL
NC

Fig. 18

Address				Signal name
A15	A14	A13	A12	
0	0	0	0	ROM 0
0	0	0	1	ROM 1
0	0	1	0	ROM 2
0	0	1	1	ROM 3
0	1	0	0	ROM 4
0	1	0	1	ROM 5
0	1	1	0	$\overline{\text{EXSEL}}$
0	1	1	1	Not used

Table 7

The ROM chip selector is shown in Fig.18 The high order 4 bits of the address bus are used to create the ROM0 ~ ROM5 and external ROM select signals.

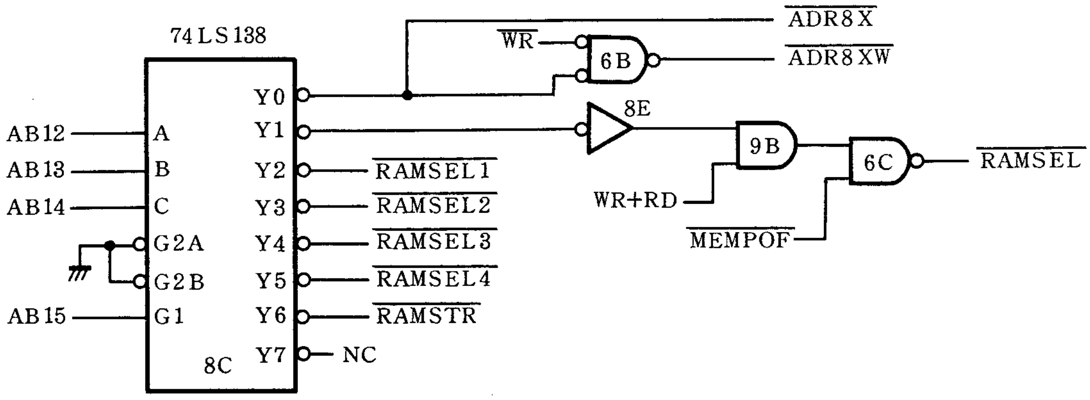

74 LS 138
AB12
AB13
AB14
AB15
A
B
C
G2A
G2B
G1
8C
Y0
Y1
Y2
Y3
Y4
Y5
Y6
Y7
RAMSEL1
RAMSEL2
RAMSEL3
RAMSEL4
RAMSTR
NC
WR
6B
ADR8X
ADR8XW
8E
9B
WR+RD
MEMPOF
6C
RAMSEL

Fig. 19

The RAM chip selector is shown in Fig.19. Similarly, the high order 4 bits of the address bus are used to create the select signal, but the RAM selector activates when AB15=1, in opposite manner to the ROM selector which activates when AB15=0. The chip select signal for the resident RAM is $\overline{\text{RAMSEL}}$. $\overline{\text{RAMSEL1}}$ thru $\overline{\text{RAMSEL4}}$ and $\overline{\text{RAMSTR}}$ are select signals used when option memory is used.

Address				Signal name	Function
A15	A14	A13	A12		
1	0	0	0	ADR8X	For peripheral
1	0	0	1	RAMSEL	For glossary & conditional
1	0	1	0	RAMSEL 1	For option RAMs
1	0	1	1	RAMSEL 2	
1	1	0	0	RAMSEL 3	
1	1	0	1	RAMSEL 4	
1	1	1	0	RAMSTR	For option RAM (8K or 16K)
1	1	1	1	Not used	–

Table 8

Fig. 20 Shows the peripheral select circuit.

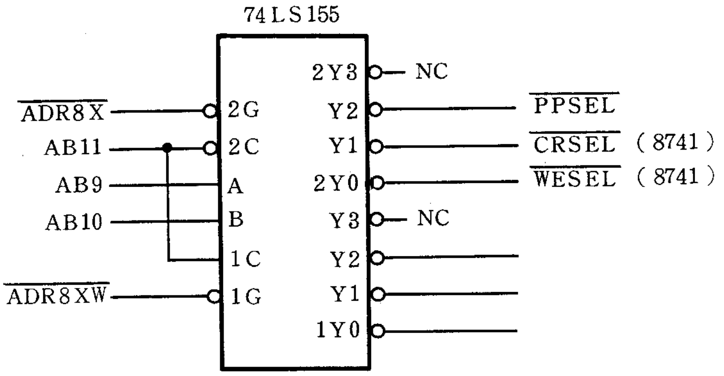

74LS155
ADR8X
AB11
AB9
AB10
ADR8XW
2G
2C
A
B
1C
1G
2Y3
Y2
Y1
2Y0
Y3
Y2
Y1
1Y0
NC
PPSEL
CRSEL (8741)
WESEL (8741)
NC

Fig. 20

This circuit is similar to that of the ZX-400, except that $\overline{\text{ADR8XW}}$, B derived by ANDing $\overline{\text{ADR8X}}$ with the WRITE signal ($\overline{\text{WR}}$).
Decoder output is achieved via $\overline{\text{DPSEL}}$ which is the chip select signal for the 8255 that is used for the display.
The signal decoded by means of $\overline{\text{ADR8XW}}$ has the same function as that of the ZX-400 in that it becomes the activating signal for the keyboard LED latch.

6. DATA HOLD CIRCUIT

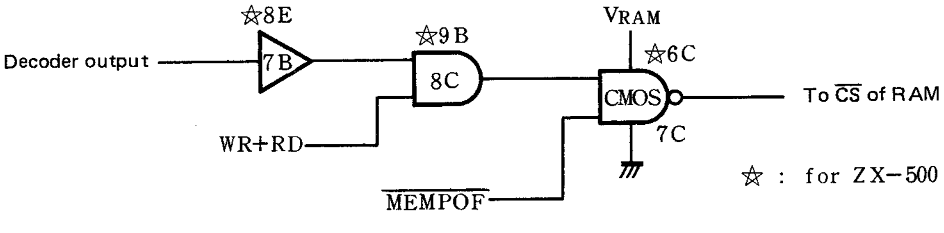

☆8E
Decoder output
7B
☆9B
8C
WR+RD
VRAM
☆6C
CMOS
7C
MEMPOF
To CS of RAM
☆ : for ZX−500

Fig. 21

Fig. 21 shows the data hold circuit.
The RAM chip select signal is issued from the CMOS gate as shown in Fig. 21. Power to this CMOS gate is VRAM which is composed of the +2.4V battery source ORed with +5V supply voltage. Normally $\overline{\text{MEMPOF}}$ is at a high level, but goes low when the main power supply is turned off or when an instantaneous power interruption is detected.
When this signal goes low during power off, it disables the CMOS gate output. Though the output is +5V as long as +5V is present, it drops to the +2.4V battery voltage when +5V is interrupted. By holding $\overline{\text{CS}}$ to an intermediate level when power has been interrupted, the data stored in RAM is protected.

7. KEYBOARD/INDICATION

7-1. Keyboard

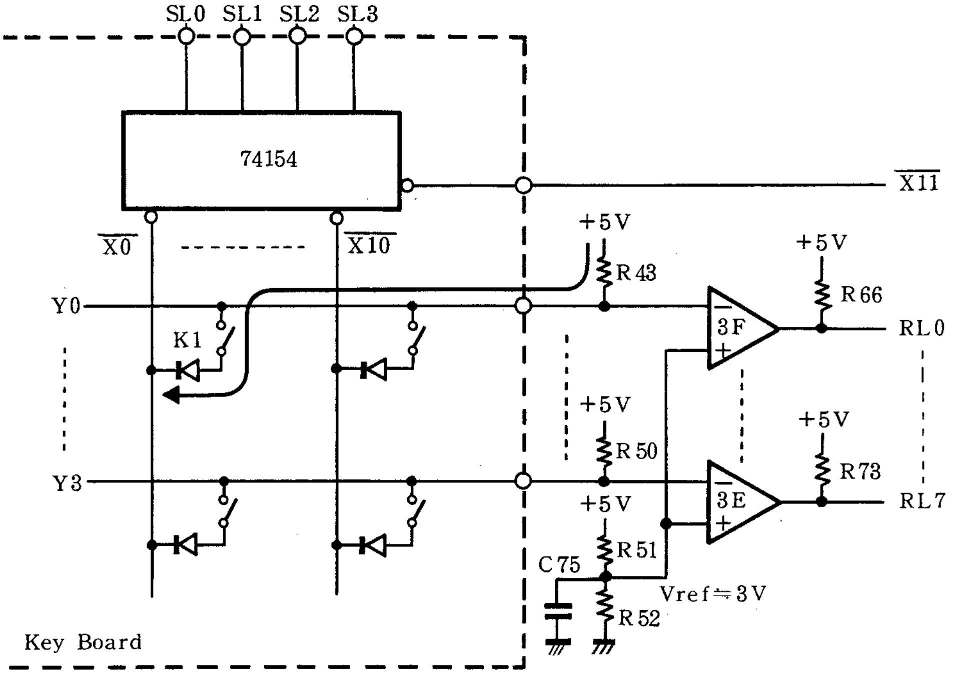

SL0 SL1 SL2 SL3
74154
$\overline{X11}$
$\overline{X0}$
$\overline{X10}$
Y0
Y3
K1
+5V
R43
R50
R51
R52
C75
3F
3E
R66
R73
RL0
RL7
Vref≒3V
Key Board

Fig. 22

Signals SL0 ~ SL3 are sent from the Main PCU I/O port and become the input to the 74154 decoder located inside the keyboard. The 74154 subsequently decodes these select signals providing $\overline{X0}$ through $\overline{X11}$. The timing is shown bellow.

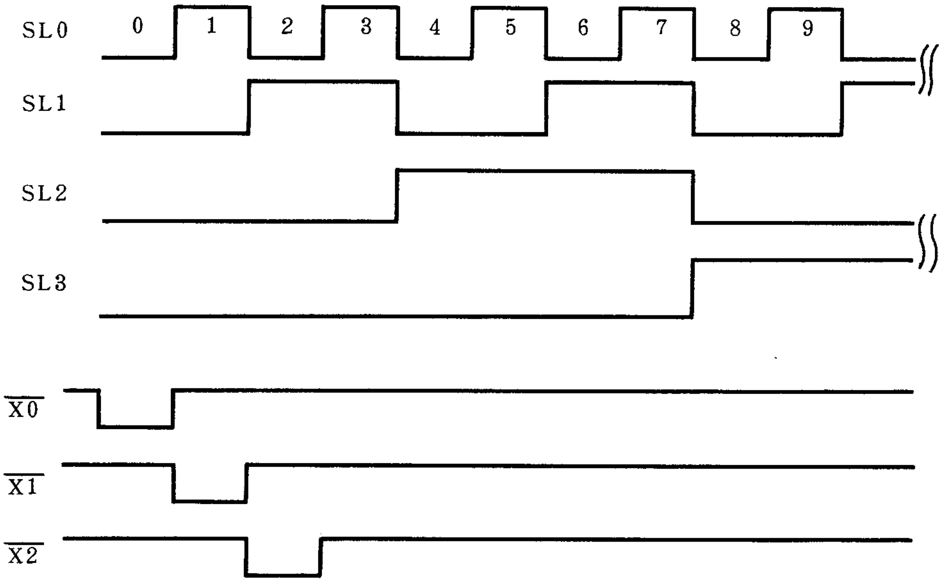


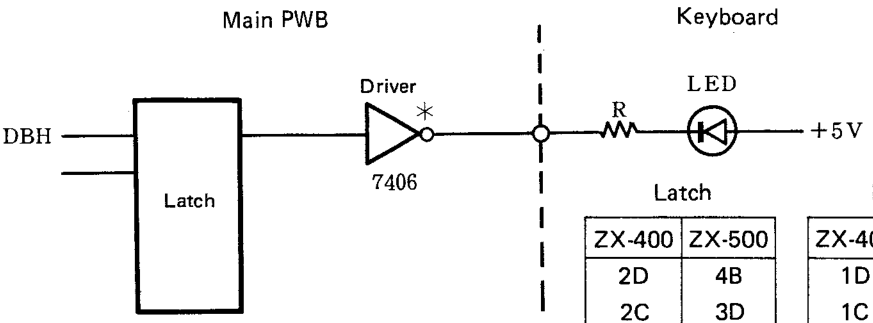
Fig. 23

Each keyboard contact is connected to one of intersections $\overline{Xn}$ ~ Yn (Fig. 22). For instance, depression of the key K1 causes current to flow during X0 towards the arrowhead and makes the voltage at the comparator (—) terminal rise to 1V which is compared with Vref (about 3V). This causes the comparator output RL0 to go to 5V. When the Main CPU reads RL0 ~ RL7 via the I/O port, the corresponding key closure is determined based on scan signals SL0 ~ SL3.

Second contact points of double-action keys such as SPACE, BACKSPACE, CORRECT, CARRIAGE RETURN, SUPERSCRIPT, SUBSCRIPT, and FORWARD (ZX-500 only) are connected to S (X10, RL7).

7-2. Indication

The circuit of the LED indicator is shown in Fig. 24.


Main PWB
Keyboard
DBH
Latch
Driver
7406
R
LED
+5V

Latch

ZX-400	ZX-500
2D	4B
2C	3D
2E	2A, 2E

Driver

ZX-400	ZX-500
1D	1A
1C	1B
1E	1F
6C	2B, 4F

Fig. 24

Data received via the Main CPU data bus is latched and sent to the 7406 driver to activate the LED.

8. BUZZER DRIVE

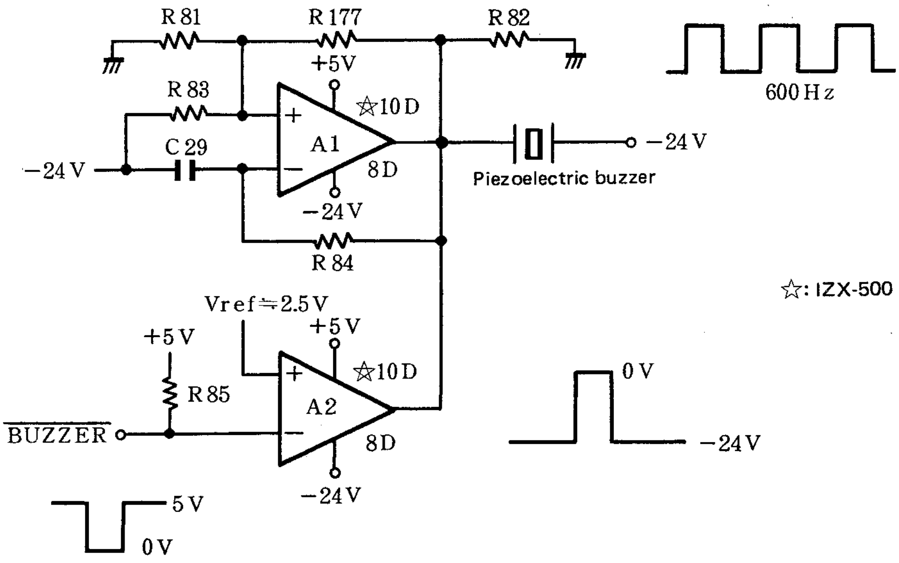

R81
R177
R82
+5V
R83
☆10D
A1
C29
-24V
8D
-24V
R84
Piezoelectric buzzer
-24V
600Hz
☆: IZX-500
Vref≒2.5V
+5V
+5V
R85
☆10D
A2
BUZZER
8D
-24V
0V
-24V
5V
0V

Fig. 25

Fig. 25 shows the buzzer drive circuit.
Comparator A1 functions as an oscillator at a frequency of about 600Hz.
A2 functions as a reverse amplifier to control buzzer action as ORed with the oscillator.

9. HAMMER DRIVE

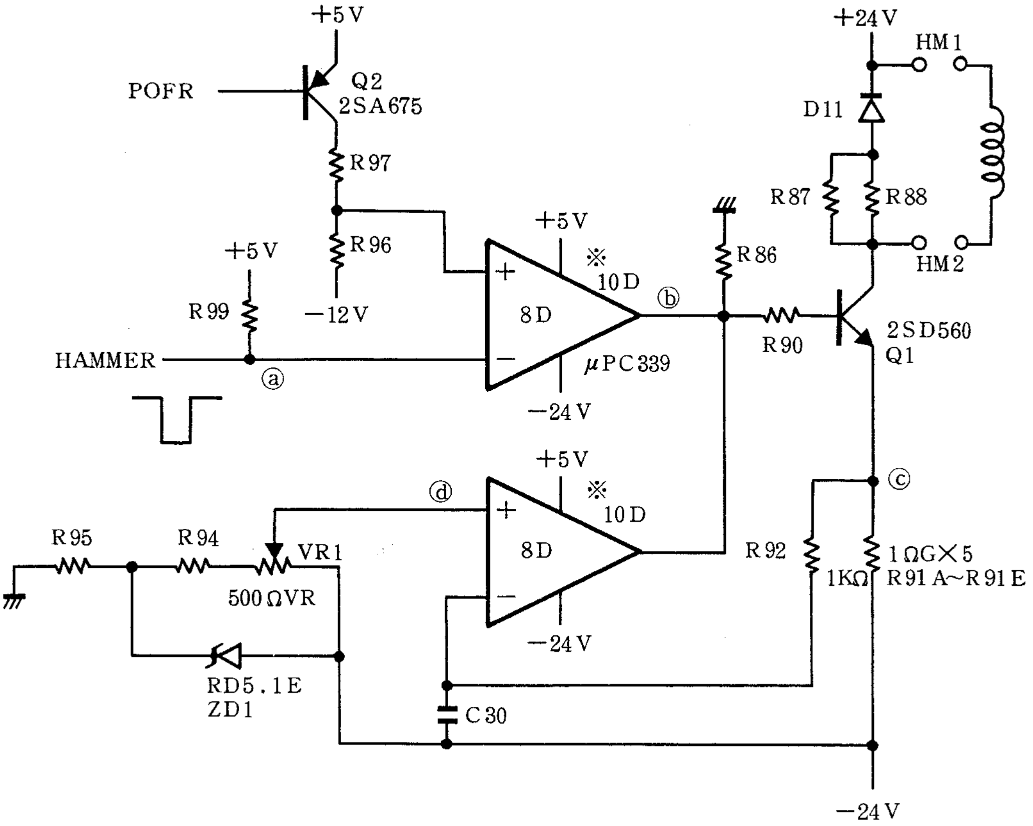

+5V
POFR
Q2
2SA675
R97
R96
+5V
R99
−12V
HAMMER
ⓐ
+5V
※
10D
8D
μPC339
−24V
ⓑ
+24V
HM1
D11
R87
R88
R86
HM2
R90
2SD560
Q1
+5V
ⓓ
※
10D
8D
−24V
R95
R94
VR1
500ΩVR
RD5.1E
ZD1
C30
R92
1KΩ
ⓒ
1ΩG×5
R91 A~R91 E
−24V

Fig. 26 Hammer drive circuit

The hammer drive circuit is composed of the signal level converter circuit and the current limiter circuit that consists of the UPC339 comparator (IC 8D) and D560 power transistor at the final stage.

Since the $\overline{\text{HAMMER}}$ signal is TTL compatible (time width controlled by typeface and impression), its polarity is inverted and level converted in the signal level converter circuit in order to meet with the −24V emitter voltage of the D560. As the reference level to this signal becomes −12V (below the TTL level) during power on and off times, though it should 2.5V as supplied from $\overline{\text{POFRE}}$, it will be corrected so as not to drive the hammer when the level of $\overline{\text{HAMMER}}$ is not stable. In the current limiter circuit is compared the reference voltage derived from the zener voltage with the voltage that current detected by the 0.2 ohms (5 x 1Ω in parallel). This is connected to the hammer signal to limit the hammer current by controlling the base potential of the D560. Since the D560 is switched to control current, an integrator circuit is provided in the current detecting comparator for hysteresis and detect voltage. Shown in Fig. 27 is the timing of main circuits.

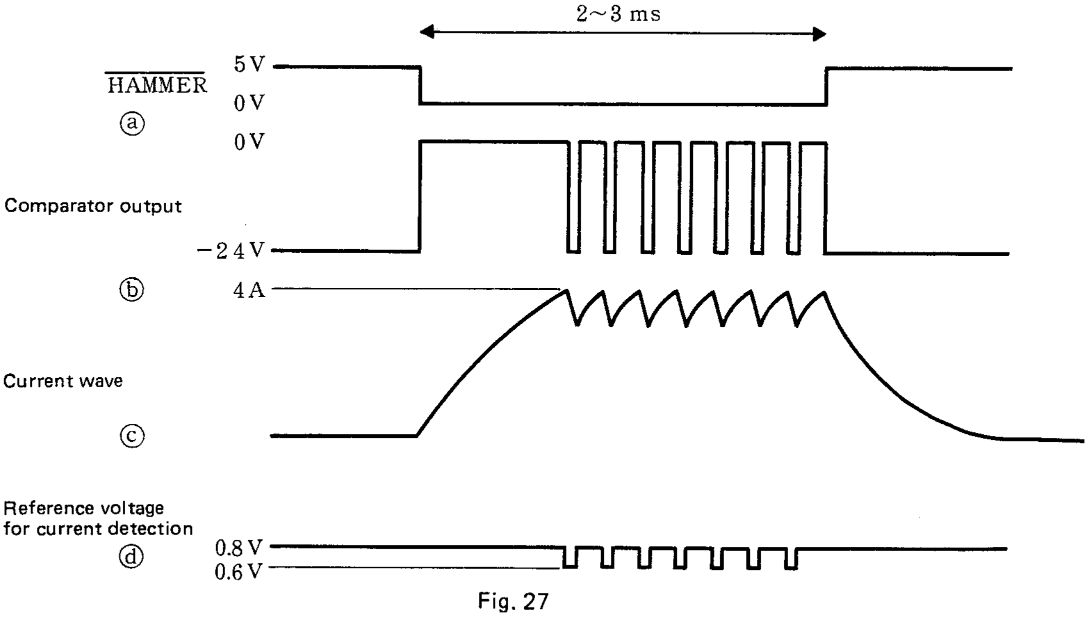


Fig. 27

10. LINEFEED MOTOR DRIVE

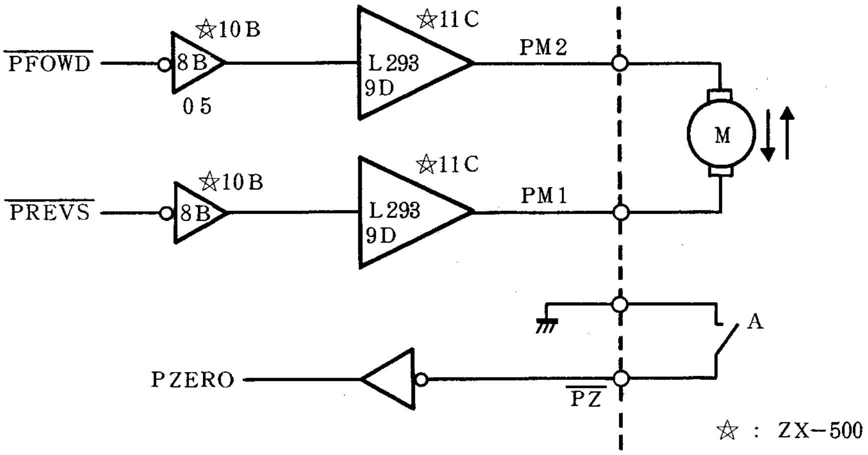

☆10B
$\overline{PFOWD}$
8B
05
☆11C
L293
9D
PM2
M
☆10B
$\overline{PREVS}$
8B
☆11C
L293
9D
PM1
A
PZERO
$\overline{PZ}$
☆ : ZX−500

Fig. 28

Fig. 28 shows the linefeed motor drive circuit.
It is controlled by two signals, $\overline{PFOWD}$ and $\overline{PREVS}$, issued from the 8741 Slave CPU. The L293 is the driver IC. Contact A closes as the motor makes a full turn. This causes PZERO to go high, which will be detected by the Slave CPU. The paper on the platen is advanced by 1/12" each time the motor makes a full turn.
The timing chart is shown below:

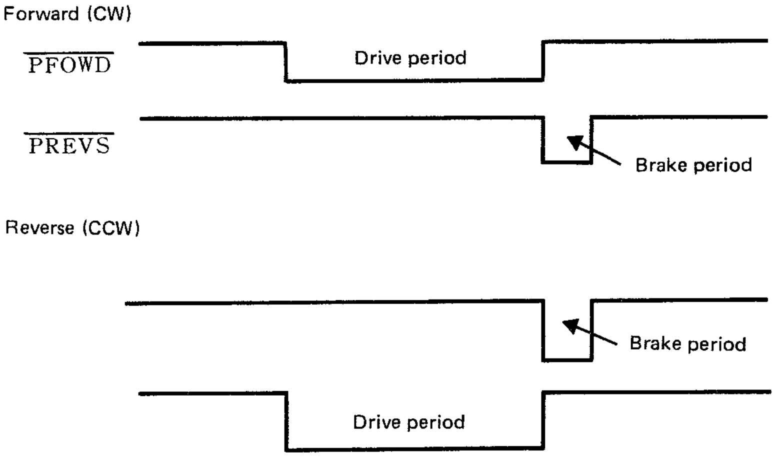

Forward (CW)
$\overline{PFOWD}$
Drive period
$\overline{PREVS}$
Brake period
Reverse (CCW)
Brake period
Drive period

Fig. 29

PFOWD in the select mode (Paperfeed pitch selector)

Line feed pitch	Motor rotations	Displacement
1	2 motor revolutions	2/12 inches
1-1/2	3 motor revolutions	3/12 inches
2	4 motor revolutions	4/12 inches
2-1/2	5 motor revolutions	5/12 inches
↥ ↧	1 motor revolution	1/12 inches

Table 11

11. RIBBON MOTOR DRIVE

The ribbon motor performs the following functions:

a) Ribbon lift.
b) Ribbon take-up.
c) Lift and take-up of lift-off correction ribbon.

Fig. 30 shows the ribbon motor drive circuit.

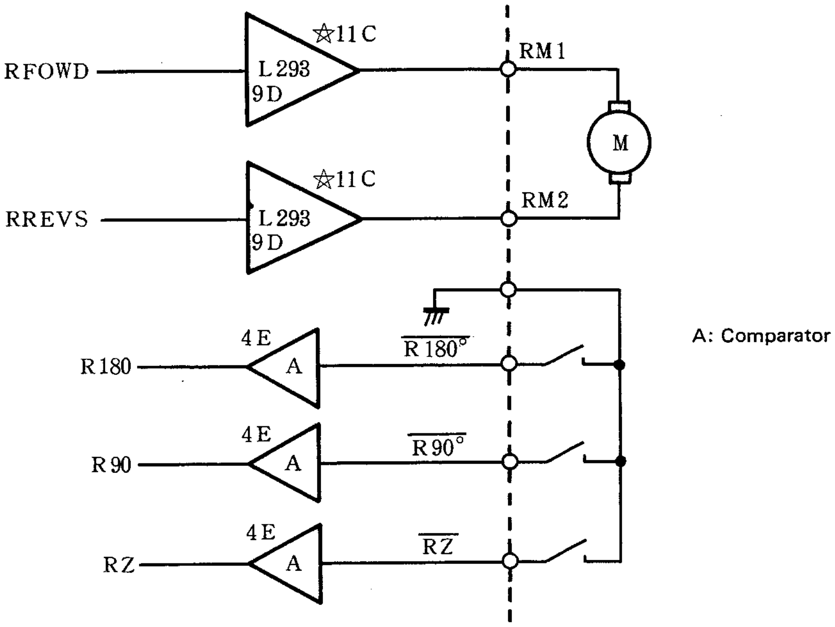

RFOWD
☆11C
L293
9D
RM1
M
RREVS
☆11C
L293
9D
RM2
R180
4E
A
R 180°
R90
4E
A
R 90°
RZ
4E
A
RZ
A: Comparator

Fig. 30

The ribbon motor performs forward and reverse operations via two signals RFOWD and RREVS, in a similar manner to the linefeed motor. This operation is controlled by the cam on the motor shaft. Position is detected by the slip ring fitted on the motor shaft and the brush contact.

Relation between cam displacement and contact signal is shown in Fig. 31.

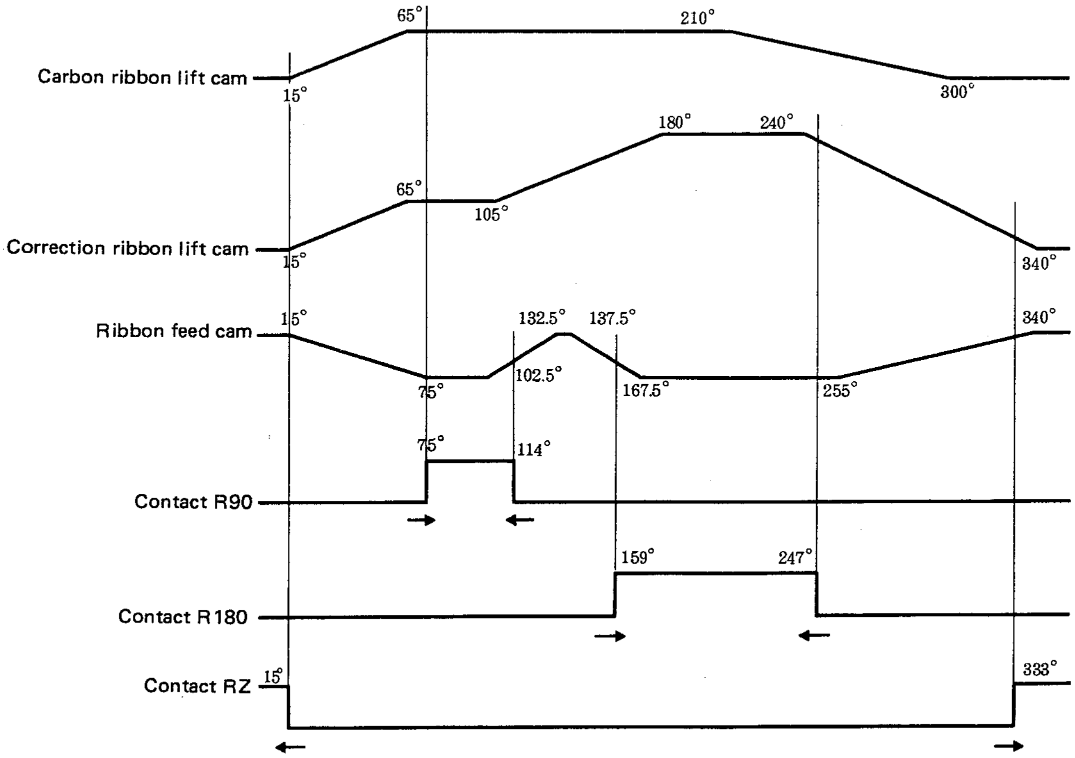
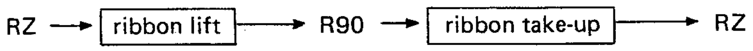
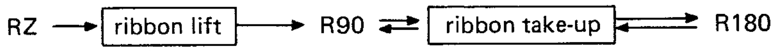


Fig. 31

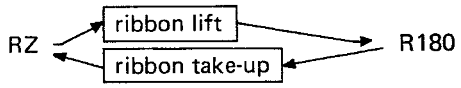
During intermittent printing:


RZ
ribbon lift
R90
ribbon take-up
RZ

During continuous printing:


RZ
ribbon lift
R90
ribbon take-up
R180

During correction:


RZ
ribbon lift
ribbon take-up
R180

Slip ring

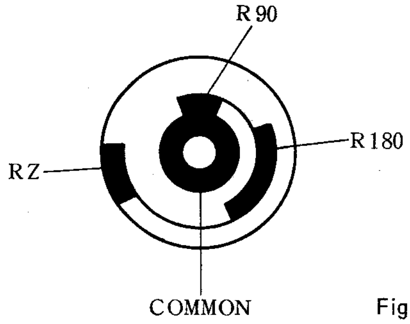

R 90
R 180
R Z
COMMON

Fig. 32

Fig. 33 shows the contact signal processing circuit.

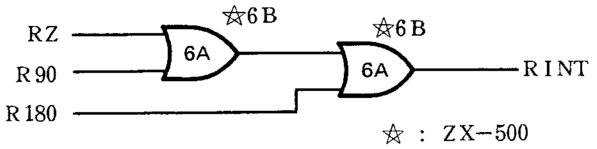
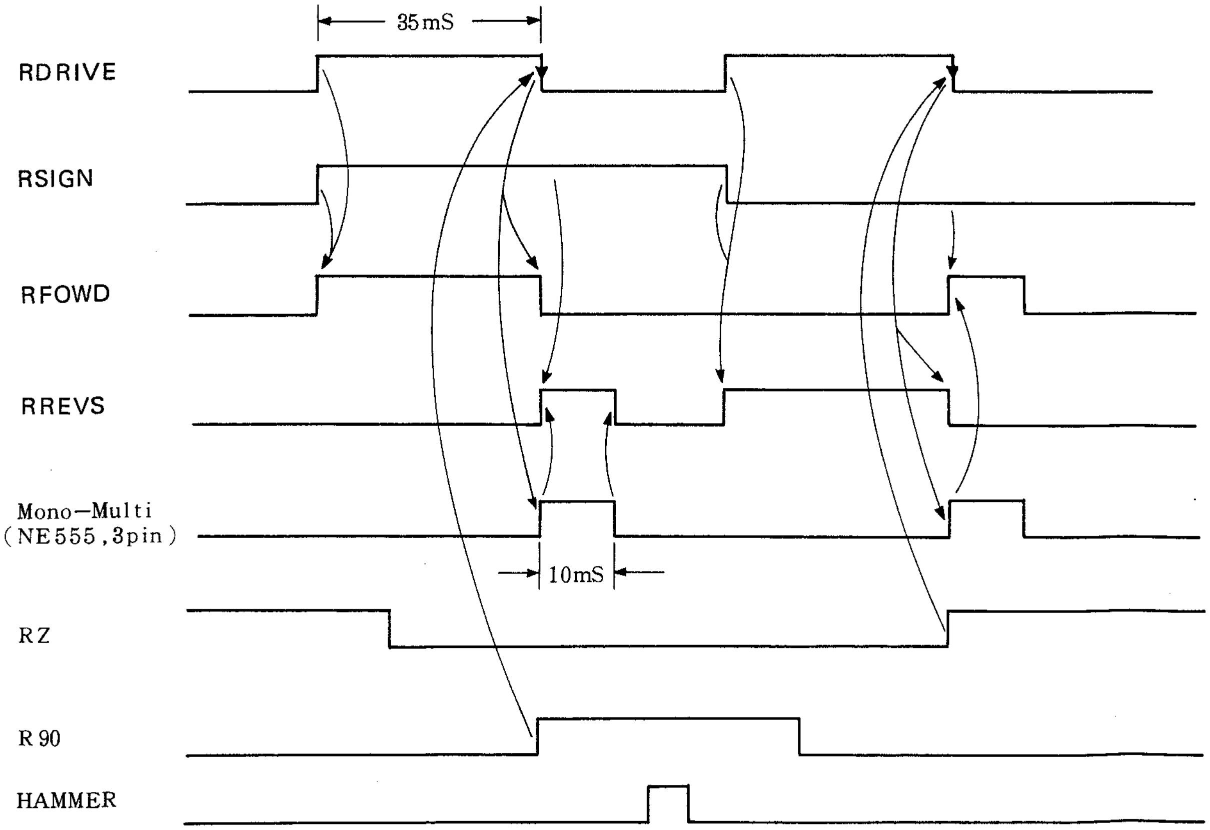

RZ
R 90
R 180
☆6 B
6A
☆6 B
6A
R I NT
☆ : ZX–500

Fig. 33

The RINT signal which is derived by ORing CAM contact signals, RZ, R90, and R180, is supplied to INT2 pin of the Main CPU. The Main CPU is interrupted via the on/off action of the contact signals so that the it will detect when the desired position is obtained.


35 mS
RDRIVE
RSIGN
RFOWD
RREVS
Mono–Multi
(NE555, 3pin)
10mS
RZ
R 90
HAMMER

12. ENCODER

This encoder detects the (i) rotating angle and (ii) rotating direction of the daisy wheel dc servo motor and the carriage drive dc servo motor. Its output is supplied to the L290 servo IC to create the motor rotating angle position, rotating speed, and home position signals.
The encoder consists of the photointerruptor unit (LED, integrated solar battery, photoelectric amplifier circuit, light interruptor mask plate), rotating slit disk, fixed disk, and the encoder supporting bracket.

12-1. Operating principle

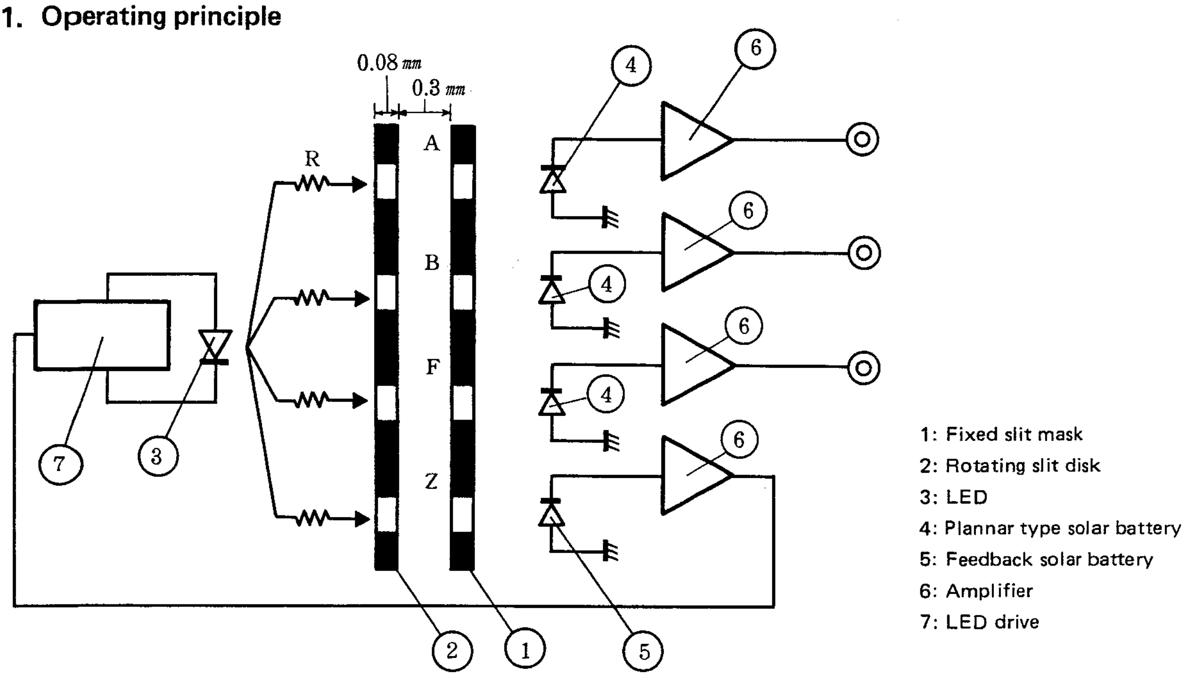
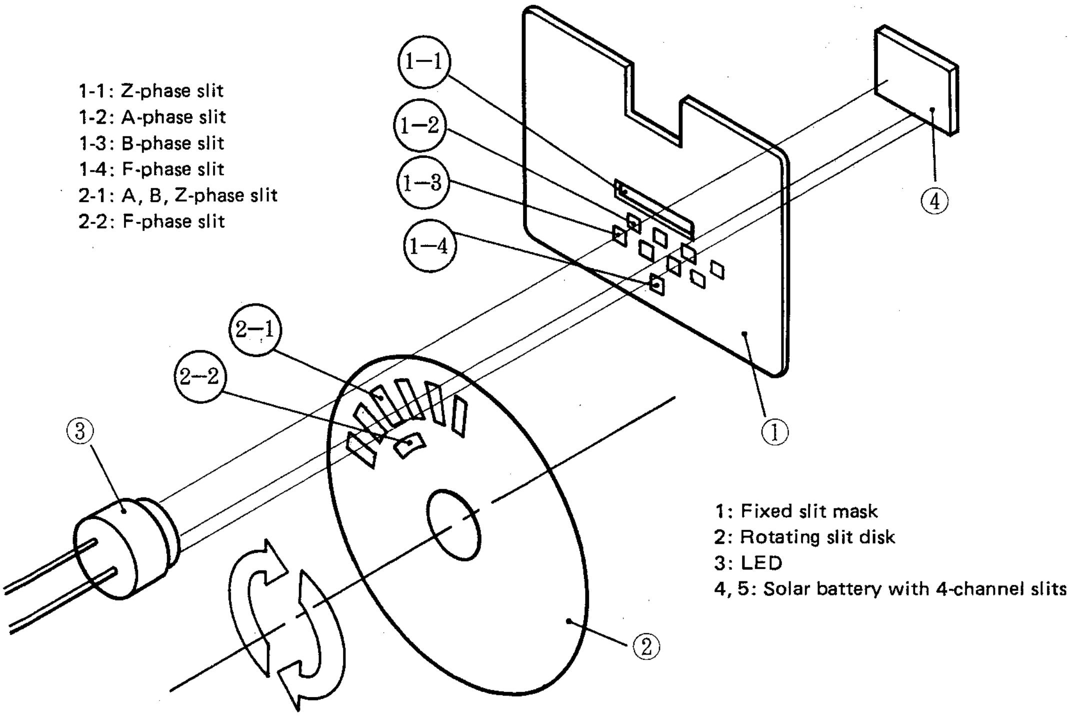


Fig. 34. Principle of encoder theory

As shown in the theoretical drawing (Fig. 34), the fixed slit mask has 4-channel slits and is closely bonded over four planar type solar batteries (4), (5). These are integrated on the same silicon wafer. The 0.08mm thick rotating slit disk (2) is located to within about 0.3mm of the slit mask. On the back of this rotating slit disk is an illuminating LED lamp to project an infrared beam through the 4-channel slits called A-phase, B-phase, Z-phase, and F-phase respectively. The infrared beam passing through these slits reaches the solar battery to generate a current which is amplified in a subsequent stage. In order to attain temperature compensation for the photoelectric amplifier circuit and to compensate for variation in mechanical dimensions, a feedback solar battery is provided which controls the current flowing to the LED (3) via the LED drive circuit (7).

The resistor "R" has been adjusted after trimming by means of a laser to compensate for quality variation of the solar battery and the motor so as to maintain the solar battery output within the specification. The motor is made integral with the encoder PWB which prevents individual replacement of the PWB or the motor.



1-1: Z-phase slit
1-2: A-phase slit
1-3: B-phase slit
1-4: F-phase slit
2-1: A, B, Z-phase slit
2-2: F-phase slit

1: Fixed slit mask
2: Rotating slit disk
3: LED
4, 5: Solar battery with 4-channel slits

Fig. 35 Encoder Optics

Fig. 35 shows the encoder optics. Selection of three phase output (A, B, Z) is done via the fixed slit mask (1) and the solar battery (4).

Light via the LED passes through the three slits (A, B, F) of the rotating disk as a parallel beam and through the Z-phase slit, at the same time as it reaches the fixed slit mask (1).

Four slits are provided for the A-phase and B-phase. They are placed equality at an interval of 90°.

The feedback slit (2-2) has a width that equals several pitches of the rotating slit disk in order to receive a continuous, stable beam regardless of the disk rotating angle rate. Each light receiving element in the solar battery wafer has the same layout as the fixed slit mask in terms of geometry.

12-2. Electrical specifications:

Number of output phases: 3
B-phase: $B=a \sin wt$
A-phase: $B=a \sin (wt \pm 90°)$
Z-phase: Trapezoidal waveform

Sign
(−): Rotating towards CW as the motor output shaft is viewed from the RE side.
(+): Rotating towards CCW as the motor output shaft is viewed from the RE side.

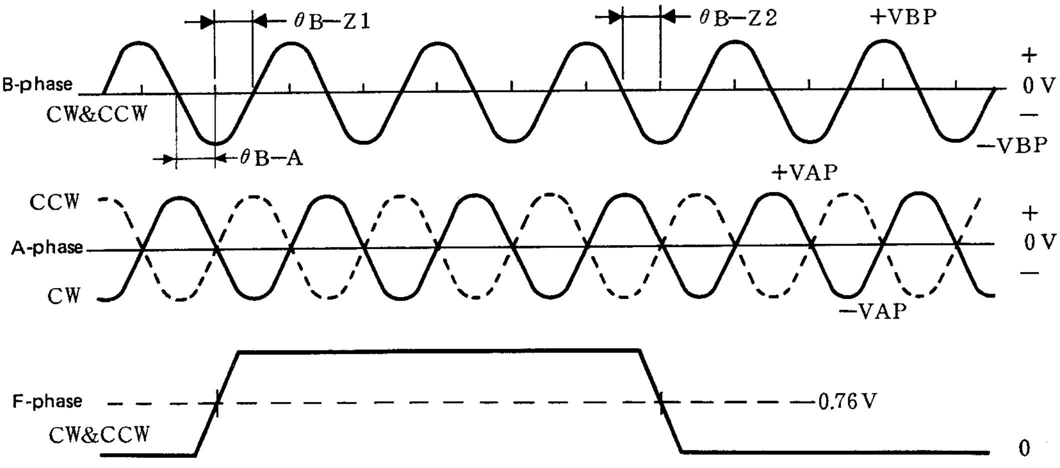


Fig. 36

Number of output waveforms:
A, B-phases: 224 sine waveform/rotation
Z-phase: 1 waveform/rotation
Number of motor rotations:
0 ~ 2500RPM (maximum sine waveform frequency: 9.33kHz)
Circuit supply voltage:
+12V, −12V, GND (stable output)
Output voltage:

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit
A-phase output	$+V_{AP}$	0.4	0.5	0.6	V
	$-V_{AP}$	0.4	0.5	0.6	V
B-phase output	$+V_{BP}$	0.4	0.5	0.6	V
	$-V_{BP}$	0.4	0.5	0.6	V
Z-phase output	V_{FH}	1.00	1.25	1.50	V
	V_{FL}	–	–	0.60	V
Phase	$Q_{B\text{-}A}$	70	90	110	°
	$Q_{B\text{-}Z1}$	55	100	145	°
	$Q_{B\text{-}Z2}$	55	100	145	°
Power dissipation	I_{TOTAL}	–	–	95	mA

Table 12 Outut voltage

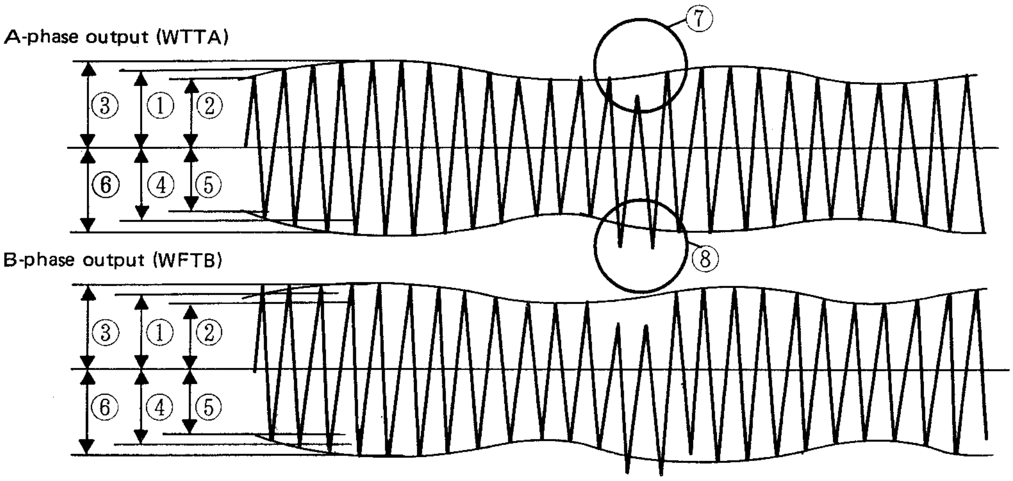
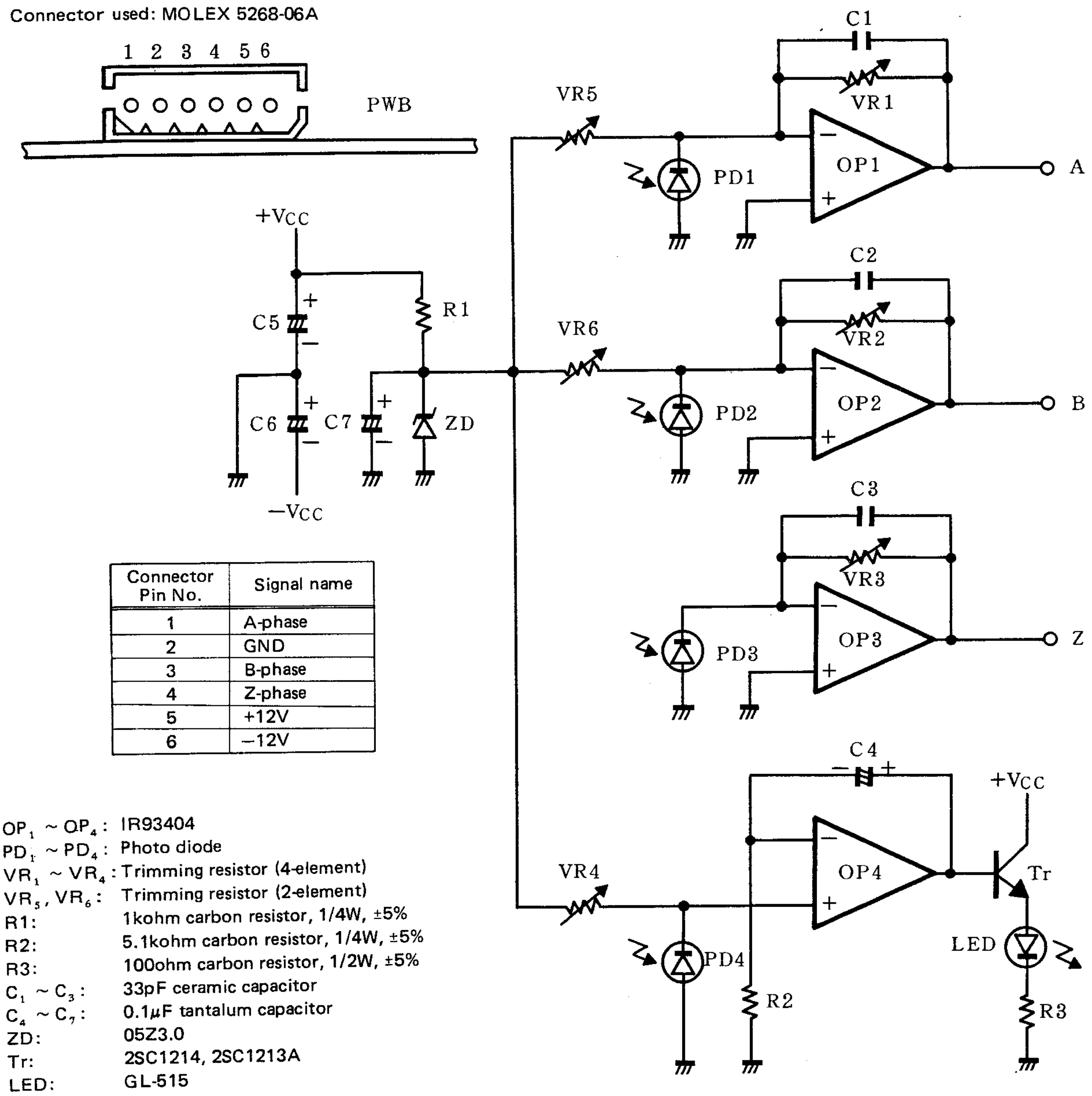


Fig. 37 Output Waveforms

As shown in Fig. 37, A-phase and B-phase outputs are three-phase continuous sine waveform differing by 90° from each other. The absolute value of the average output voltage (1) $+V_{AP}$, TYP, $+V_{BP}$ TYP. (4) $-V_{AP}$ TYP, $-V_{BP}$ TYP is 0.5Vp-p respectively. The amplitude of the sine waveform may vary due to surface oscillation of the rotating slit disk. When the space between the slit disk and slit mask becomes less than 0.30mm the output value increases as they come close to each other as in (3) and (6). Conversely, when the distance becomes larger than a space of the slit mask (more than 0.30mm), the output value reduces as shown in (1) and (4). Because of this, it is necessary to use a slit disk where surface oscillation has been adjusted to less than 0.20mm. Output voltage, $+V_{AP}$, $-V_{AP}$, $+V_{BP}$, and $0V_{BP}$ was originally adjusted to a range of 0.4V to 0.6V including ripple after mechanical position alignment of the slit mask. Should the output voltage exceed that range, the motor unit should be replaced. Should a staircase-like waveform appear as in (7) and (8), it is probable that proper LED beam projection is impared due to dusk in a slit of the slit disk. In this event, the slit disk must be cleaned using a cameraman's lens cleaning air blower. However, such a problem is usually not encountered in these Products under normal use.

12-3. Circuit digram

Both the daisy wheel dc servo motor and carriage drive dc servo motor have the same structure and circuit.


Connector used: MOLEX 5268-06A
1 2 3 4 5 6
PWB
+Vcc
C5
R1
C6
C7
ZD
−Vcc
VR5
VR6
VR4
PD1
PD2
PD3
PD4
C1
VR1
OP1
A
C2
VR2
OP2
B
C3
VR3
OP3
Z
C4
OP4
R2
+Vcc
Tr
LED
R3

Connector Pin No.	Signal name
1	A-phase
2	GND
3	B-phase
4	Z-phase
5	+12V
6	−12V

$OP_1 \sim OP_4$: IR93404
$PD_1 \sim PD_4$: Photo diode
$VR_1 \sim VR_4$: Trimming resistor (4-element)
VR_5, VR_6: Trimming resistor (2-element)
R1: 1kohm carbon resistor, 1/4W, ±5%
R2: 5.1kohm carbon resistor, 1/4W, ±5%
R3: 100ohm carbon resistor, 1/2W, ±5%
$C_1 \sim C_3$: 33pF ceramic capacitor
$C_4 \sim C_7$: 0.1μF tantalum capacitor
ZD: 05Z3.0
Tr: 2SC1214, 2SC1213A
LED: GL-515

Fig. 38 Encoder Circuit

Resistors, VR1, VR2, and VR3, are used to determine output voltage amplitude of A, B, and Z-phase, and VR5 and VR6 are the resistors that determine dc output level. Light emitting current of the LED can be adjusted by means of VR4. Since these resistors have been laser trimmed in the encoder assembly process to obtain a specified voltage, they need no adjustment.

If the circuit shown in Fig. 38 was found defective, replace the whole motor unit.

13. SERVO CIRCUIT

13-1. 8741 slave CPU

Two slave 8741 CPU's are used in the servo circuit; the one is used for carriage drive and the other is used for print-wheel drive, linefeed motor drive, and hammer solenoid drive.

The 8741 is slave type one-chip microprocessor which consists of the 1K x 8-bit program memory (EPROM), 64K x 8-bit data memory and 16 I/O ports.

13-1-1. Block diagram

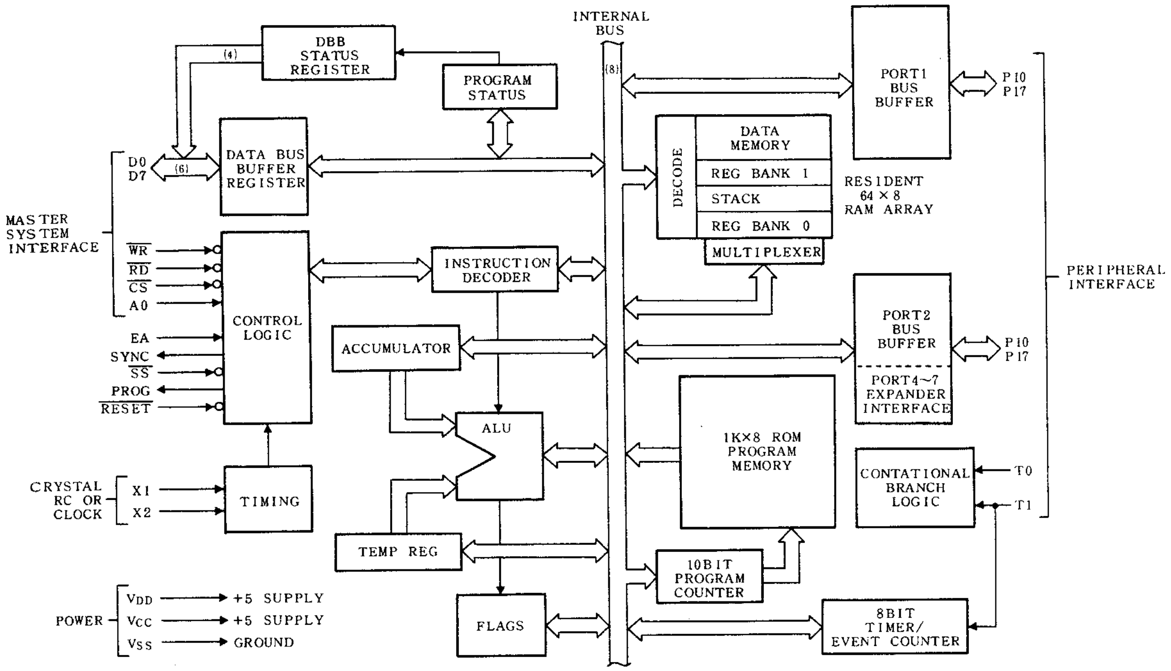

INTERNAL BUS
DBB STATUS REGISTER
(4)
PROGRAM STATUS
(8)
PORT1 BUS BUFFER
P10
P17
D0
D7
(6)
DATA BUS BUFFER REGISTER
DECODE
DATA MEMORY
REG BANK 1
STACK
REG BANK 0
RESIDENT 64 × 8 RAM ARRAY
MULTIPLEXER
MASTER SYSTEM INTERFACE
WR
RD
CS
A0
INSTRUCTION DECODER
PERIPHERAL INTERFACE
CONTROL LOGIC
EA
SYNC
SS
PROG
RESET
ACCUMULATOR
PORT2 BUS BUFFER
P10
P17
PORT4~7 EXPANDER INTERFACE
ALU
1K×8 ROM PROGRAM MEMORY
CRYSTAL RC OR CLOCK
X1
X2
TIMING
CONTATIONAL BRANCH LOGIC
T0
T1
TEMP REG
10BIT PROGRAM COUNTER
POWER
VDD
VCC
VSS
+5 SUPPLY
+5 SUPPLY
GROUND
FLAGS
8BIT TIMER/ EVENT COUNTER

Fig. C

13-1-2. Pin configuration (Top view)

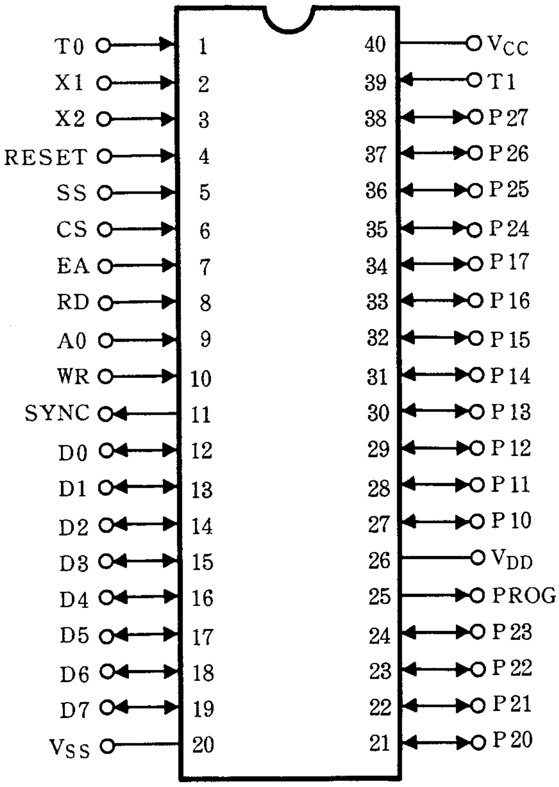

T0 1
X1 2
X2 3
RESET 4
SS 5
CS 6
EA 7
RD 8
A0 9
WR 10
SYNC 11
D0 12
D1 13
D2 14
D3 15
D4 16
D5 17
D6 18
D7 19
VSS 20
40 VCC
39 T1
38 P27
37 P26
36 P25
35 P24
34 P17
33 P16
32 P15
31 P14
30 P13
29 P12
28 P11
27 P10
26 VDD
25 PROG
24 P23
23 P22
22 P21
21 P20

Fig. D

13-1-3. Signal descriptions

Pin No.	CPU Name	Signal Name	In/Out	Description	Function
2	X1	$\overline{\text{XCLK}}$	Input	X'tal clock	Clock, 6MHz
3	X2	XCLK	Input	X'tal clock	Clock, 6MHz
8	$\overline{\text{RD}}$	$\overline{\text{RD}}$	Input	Read signal	Read control signal used to transfer data from the slave CPU 8741 to the Main CPU.
10	$\overline{\text{WR}}$	$\overline{\text{WR}}$	Input	Write signal	Write control signal used to transfer data or command from the Main CPU to the Slave CPU 8741.
9	A0	AB0	Input	Address line	Used to select the address from which data is read in the case of reading operation, or to turn the flag according to the state of the signal on the pin in the case writing operation.
6	$\overline{\text{CS}}$	$\overline{\text{WESEL}}$	Input	Printwheel CPU select	Chip select signal (WH)
		$\overline{\text{CRSEL}}$		Carriage CPU select	Chip select signal (CR)
12	D0	DB0	Input/ Output	Data line	Used to transfer data between Main CPU and Data Bus Buffer in the Slave CPU.
13	D1	DB1			
14	D2	DB2			
15	D3	DB3			
16	D4	DB4			
17	D5	DB5			
18	D6	DB6			
19	D7	DB7			
4	$\overline{\text{RESET}}$	$\overline{\text{RESET}}$	Input	Reset	Reset signal
1	T0	WH+$\overline{\text{CRDY}}$	Input		
		CG		Carriage	The signal indicating correction of the servo checker which the carriage CPU performs test. (CR)
39	T1	$\overline{\text{RRDY}}$	Input	Ribbon ready	Ribbon ready for operation (WH)
		–		–	Not used (CR)
38	P27	PZERO	Input	Paper zero	Paper feed home position (WH)
		$\overline{\text{WRDY}}$		Wheel ready	Printwheel ready signal (CR)
37	P26	STF	Input		Output waveforms from CFTA (WFTA), CFTB (WFTB) and CFTF (WFTF) encoders are supplied to the slave CPU 8741 after shaping their waveforms.
36	P25	STB	Input		
35	P24	STA	Input		
24	P23	$\overline{\text{WRDY}}$	Input	Wheel ready	Printwheel ready signal (WH)
		$\overline{\text{CRDY}}$	Input	Carriage ready	Carriage ready signal (CR)
23	P22	$\overline{\text{PFOWD}}$		Paper forward	Print feed motor forward signal (WH)
		–			Not used
22	P21	$\overline{\text{PREVS}}$	Output	Paper reverse	Paper feed motor reverse signal (WH)
		–	–	–	Not used (CR)
21	P20	$\overline{\text{HAMMER}}$	Output	HAMMER	Hammer drive signal (WH)
		–	–	–	Not used (CR)
		$\overline{\text{FAN}}$	Output	Fan	Keeps the fan operated 15 seconds more after printing (WH ... ZX-500 only)

Pin No.	CPU Name	Signal Name	In/Out	Description	Function
27	P10	SC1	Output	Speed control	Speed control signal. In the highest speed when all are in low state.
28	P11	SC2			
29	P12	SC3			
30	P13	SC4			
31	P14	SC5			
32	P15	SIGN	Output	Sign	Rotating direction signal. Low with CW and high with CCW.
33	P16	POSE	Output	Position strobe	Used to specify which signal the speed control or position signal is in effect. Stops with low state of signal and both SC1-5 and sign become effective with high state of signal.
34	P17	CE	Output	Chip enable	Chip enable signal for L292.
5	CS	–	–	–	Not used
11	SYNC	–	–	–	Not used
20	VSS	GND	Input	Power supply	GND (0V)
26	VDD	+5V	Input	Power supply	+5V
40	VCC	+5V	Input	Power supply	+5V
25	PROG	–	–	–	Not used
7	EA	–	–	–	Not used

13-2. Circuit description

13-2-1. Block diagram (General)

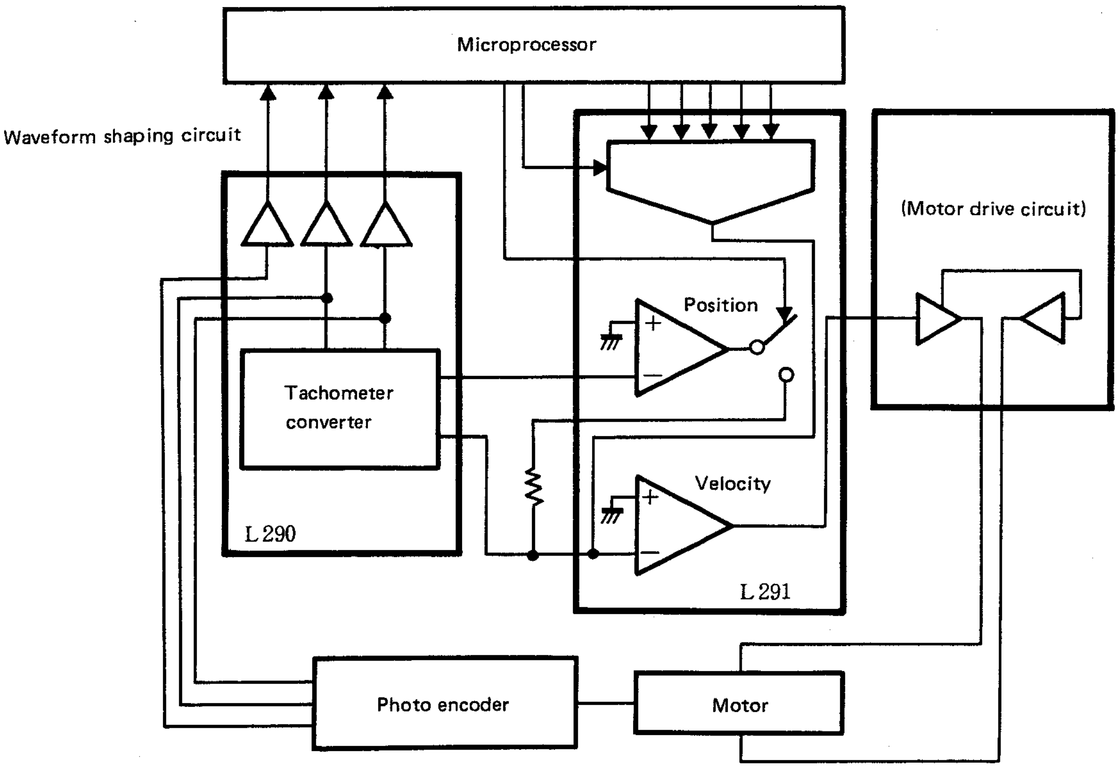

Microprocessor
Waveform shaping circuit
(Motor drive circuit)
Position
Tachometer converter
Velocity
L 290
L 291
Photo encoder
Motor

Fig. 39

Fig. 39 is shows the block diagram of the servo circuit. One servo system consists of the microprocessor and three IC's. These three IC's are the L290 tachometer converter, L291 D/A converter/position signal amplifier, and L292 PWM type drive circuit.

13-2-2. Block diagram (Details)

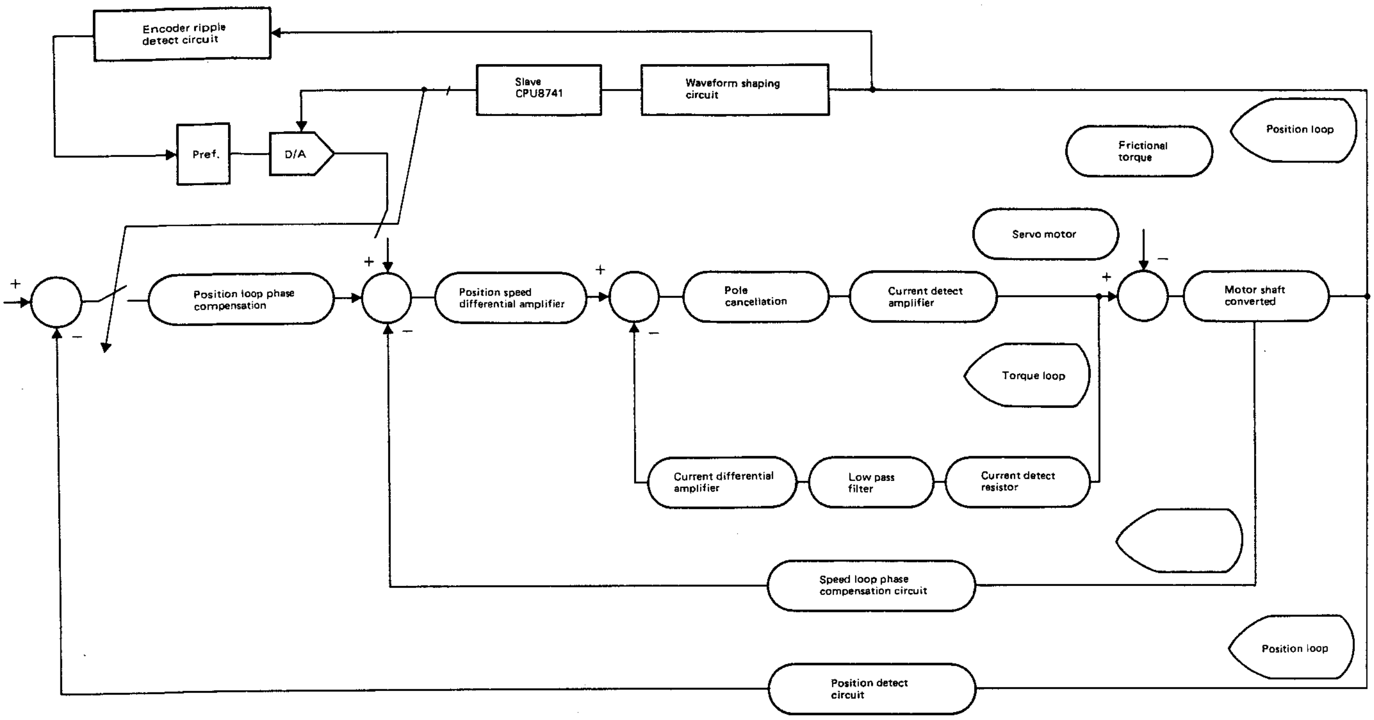

Encoder ripple detect circuit
Slave CPU8741
Waveform shaping circuit
Pref.
D/A
Frictional torque
Position loop
Servo motor
Position loop phase compensation
Position speed differential amplifier
Pole cancellation
Current detect amplifier
Motor shaft converted
Torque loop
Current differential amplifier
Low pass filter
Current detect resistor
Speed loop phase compensation circuit
Position loop
Position detect circuit
+
−

Fig. 40

The L290 tachometer converter has the following functions:

(1) generation of position reference voltage, (2) generation of shaft position voltage, (3) generation of motor speed signal derived from the pulse generated from the motor shaft encoder. This information is supplied to the microprocessor to create a 5-bit control word. This control word is supplied to the L291 together with the position reference voltage and the speed information to determine the motor speed. The motor speed is dependent on the remaining distance that the motor has traversed.

The IC L292 generates the motor drive signal which is derived from the amplified error signal from the L291, and the output from the internal oscillator which is pulse width modulated (PWM). The PWM signal drives the bidirectional bridge circuit and controls the current applied to the servo motor.

13-2-3. Speed detection and position detection:

Motor speed is detected by the microprocessor. There is no signal feedback from the L290 tachometer converter when it is in the reset condition. It is then ready to receive a new position command as the motor is stopped. Thus the servo system operates in the open loop stage. At this time the drive circuit supplies maximum current to the motor. As the motor reaches the speed specified the tachometer converter signals the microprocessor to decrease the accelerating torque.

When the microprocessor receives the signal from L290 that it is near the target position, the microprocessor decreases the value of the 5-bit speed control command sent to the L291. Consequently, the voltage to the L292 is dropped to brake the motor. Braking is gradually increased until the motor reaches the lowest speed at which time the microprocessor function changes to detect the position. After several microseconds the L291 issues the signal that the motor shaft is at the desired position. Due to the characteristics of the high gain feedback loop, the motor is locked in position electronically. Speed may be changed by 22 steps by the printwheel and 26 steps by the carriage.

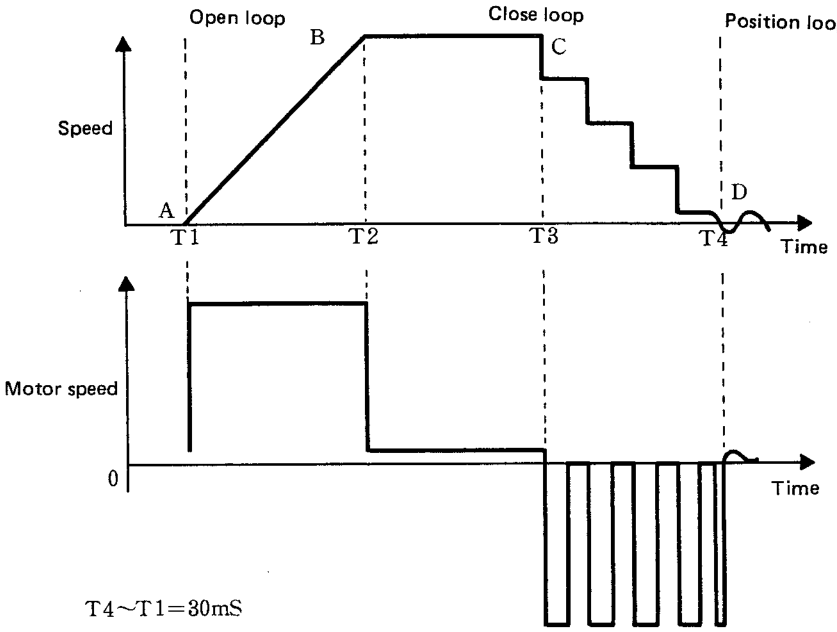


Fig. 41

13-2-4. Detection of motor shaft position:

The motor is mechanically interfaced with the L290 by way of a photo-encoder. The photo-encoder generates two half wave signals with frequencies proportional to the rotating speed. They are displaced from each other by 90°. Phase advance and delay differ according to the motor rotating direction. The encoder generates one signal output per full turn of the motor in reference with a particular point on the disk.

13-2-5. Encoder output processing:

Processing of encoder output is carried out in the L290 tachometer converter. Fig. 42 shows a block diagram of the tachometer converter.

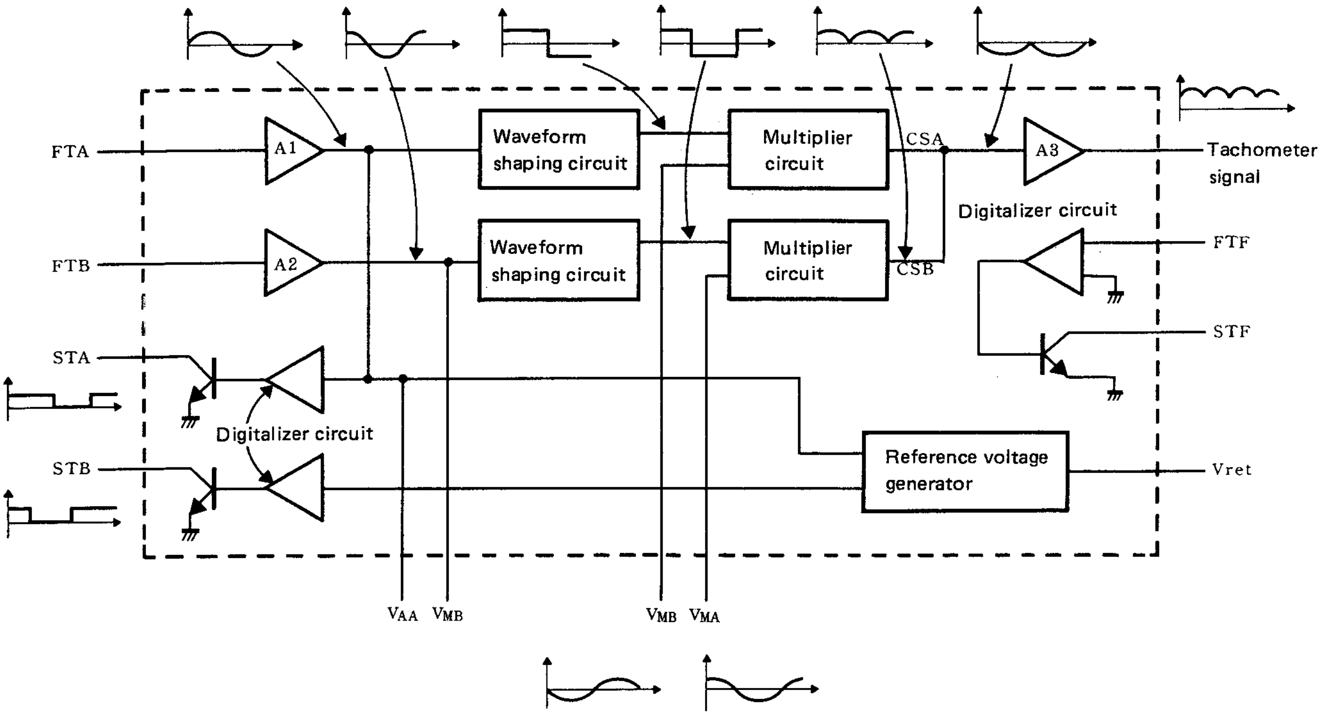

FTA
FTB
STA
STB
A1
A2
A3
Waveform shaping circuit
Waveform shaping circuit
Multiplier circuit
Multiplier circuit
CSA
CSB
Tachometer signal
Digitalizer circuit
FTF
STF
Digitalizer circuit
Reference voltage generator
Vret
VAA
VMB
VMB
VMA

Fig. 42

The L290 tachometer converter converts the input signal frequency (proportional to the motor rotating speed) into the tachometer signal (voltage), to be supplied to the L291.
Theoretically, it will be sent to the L290 in the following manner.

$$\text{Output} = \frac{dV_{AA}}{dt}\,\frac{FTB}{|FTB|} - \frac{dV_{AB}}{dt}\,\frac{FTA}{|FTA|}$$

Encoder outputs, FTA (A-phase and FTB (B-phase) are amplified in A1 and A2 of the L290, to be converted into V_{AA} and V_{AB}, respectively. Voltages VMA and VMB are created from V_{MA} + V_{MB} and are supplied to multipliers in the IC via the external CR differentiation circuit. Second inputs to both multipliers are polarity signals of the first inputs before differentiation, which are created in the comparator CS1 and CS2, respectively.
Next, CSA and CSB, which are outputs from both amplifiers, are subtracted in the simplifier A3 to finally become the tachometer signal output. This tachometer signal indicates the motor rotating direction. Shown in Fig. 42 is the wavefrom when the motor is running in the clockwise direction. When it rotates in the counterclockwise direction, phase angle changes from +90° to −90°. The phase of FTB during counterclockwise rotation is the opposite of the clockwise rotation as compared with FTA. Therefore, the two rectified sine waveform signals CSA and CSB are different in polarity so that the polarity of the tachometer signals is also different.

13-2-6. Operation of L291 D/A converter

Fig. 43 shows the block diagram of the L291.

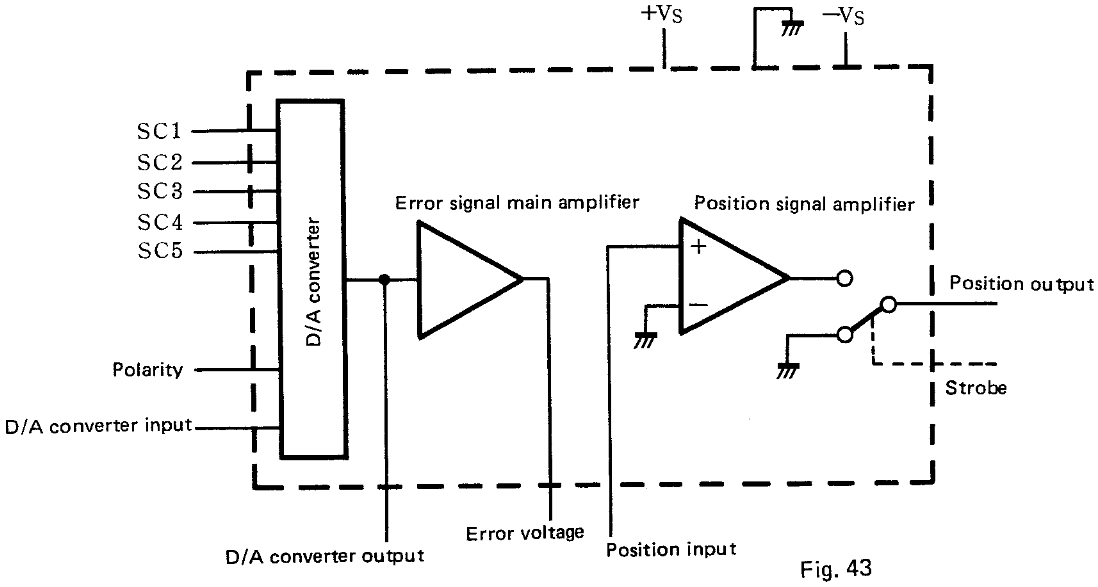


Fig. 43

The L291 consists of the D/A converter, error signal main amplifier, and position signal amplifier.
The D/A converter receives a 5-bit signal from the microprocessor and outputs current of both polarities.
The polarity is dependent on the rotating direction signal and its amplitude is a multiple of the reference current IO and is represented by the following formula:

$$IO = 2\,Iref\,(1 - \frac{1}{2^n})$$

where,
n: number of input bits

There are two inputs to the error signal main amplifier. One is the output from the D/A converter and the other is a modified signal from the tachometer. L290. These two signals create the motor drive error signal ERRV which is input Vi to the drive circuit L292.
The position signal arithmetical amplifier is used to increase servo loop gain in terms of position detect processing. When the internal switch is closed after activating the strobe input, the output from the position signal amplifier is connected to the L291 so that the signal of the amplifier is added to the control loop.

Speed control (SC1 ~ SC5): The highest speed is directed when all are in low state, and zero speed is directed when all are in high state.
Polarity signal (SIGN): Clockwise with low state of signal, and counterclockwise with high state of signal.
Position strobe signal (POSE): To the position signal amplifier side with low state of signal, and the position output is connected to the GND side with high state of signal so that SC1 ~ SC5 becomes effective.

13-2-7. L292 driver IC

A Block diagram of the L292 is shown in Fig. 44.

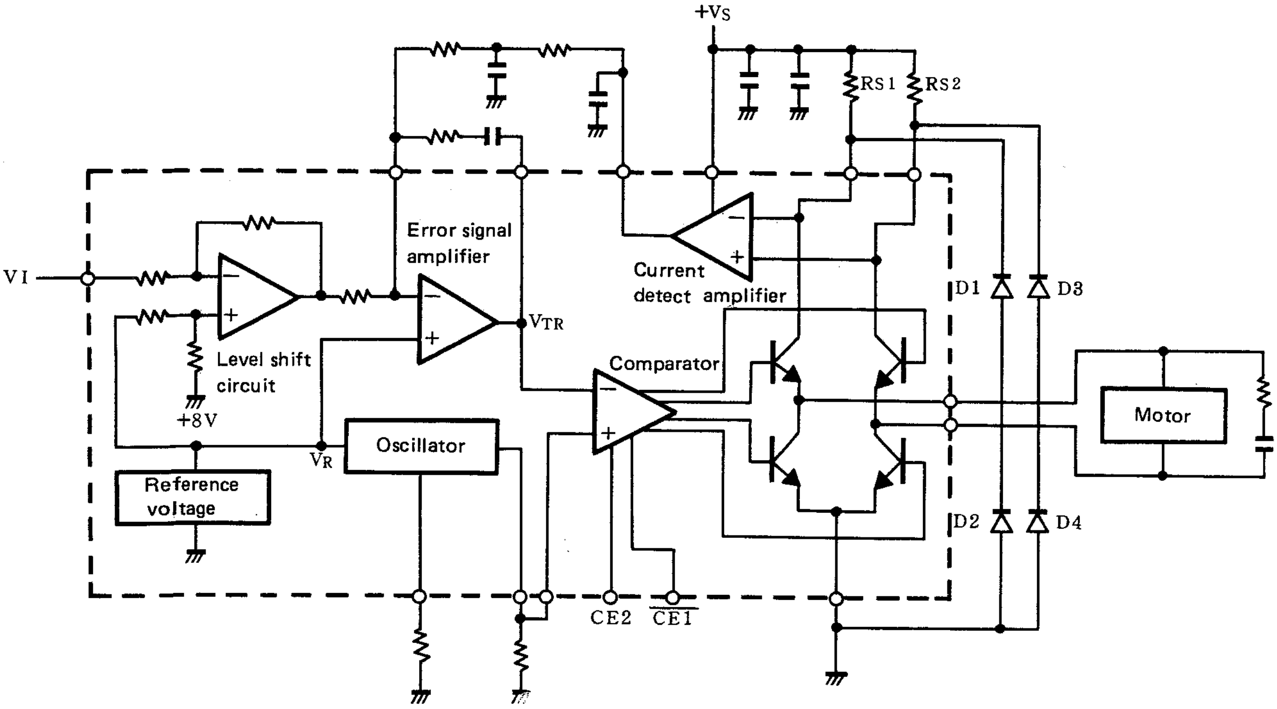


Fig. 44

The L292 consists of the input buffer amplifier, loop compensating reverse phase amplifier, oscillator, comparator, drive circuit, output stage, and the motor current detector, and is driven by a single power supply.

Since the input signal ERRV from the L291 is bipolar, an input stage forming a voltage converter is used to convert the input into a positive signal. Also, the L292 acts as the transconductance amplifier as the motor current is controlled by the input voltage Vi.

During acceleration of the motor, the input voltage Vi of the L292 reaches maximum and the output current is greatest so that the motor is driven to highest torque and acceleration. Vi is level shifted in the L292 and compared with the feedback signal that represents the motor current. This feedback signal is derived from the feedback loop that consists of two current detect resistors RS1 and RS2, differential current detection amplifier, and low pass filter. Therefore, the output signal VTH from the error signal amplifier is proportional to the difference between the input signal Vi and the motor current. The VTH acts as the control input to the comparator. Another comparator input consists of the triangle waveform from the oscillator. Thus, the duty cycle of the PWM signal is dependent on the value of VTH. This signal drives a bridge circuit consisting of four transistors which drives the motor.

Since there are two stable terminals for the L292, setting one of them high and the other low will cause the output stage to stop. Using these two inputs, the motor operation is stopped during a reset of the logic circuit.

14. DISPLAY

14-1. 8039 CPU

14-1-1. Block diagram

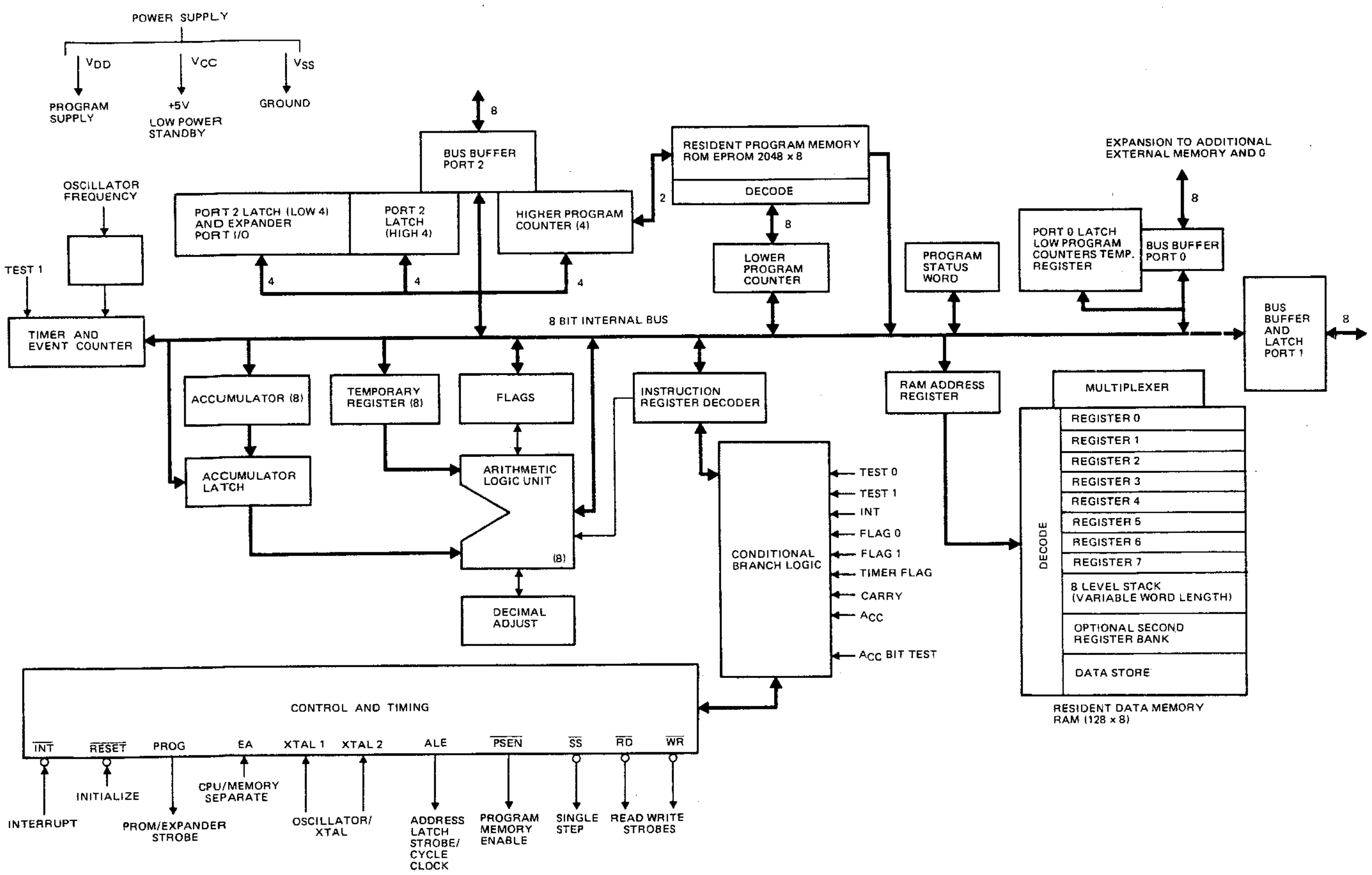

POWER SUPPLY
VDD
VCC
VSS
PROGRAM SUPPLY
+5V LOW POWER STANDBY
GROUND
OSCILLATOR FREQUENCY
TEST 1
TIMER AND EVENT COUNTER
PORT 2 LATCH (LOW 4) AND EXPANDER PORT I/O
PORT 2 LATCH (HIGH 4)
BUS BUFFER PORT 2
HIGHER PROGRAM COUNTER (4)
RESIDENT PROGRAM MEMORY ROM EPROM 2048 x 8
DECODE
LOWER PROGRAM COUNTER
PROGRAM STATUS WORD
PORT 0 LATCH LOW PROGRAM COUNTERS TEMP. REGISTER
BUS BUFFER PORT 0
EXPANSION TO ADDITIONAL EXTERNAL MEMORY AND 0
BUS BUFFER AND LATCH PORT 1
8 BIT INTERNAL BUS
8
4
2
ACCUMULATOR (8)
TEMPORARY REGISTER (8)
FLAGS
ACCUMULATOR LATCH
ARITHMETIC LOGIC UNIT
(8)
DECIMAL ADJUST
INSTRUCTION REGISTER DECODER
CONDITIONAL BRANCH LOGIC
TEST 0
TEST 1
INT
FLAG 0
FLAG 1
TIMER FLAG
CARRY
ACC
ACC BIT TEST
RAM ADDRESS REGISTER
MULTIPLEXER
DECODE
REGISTER 0
REGISTER 1
REGISTER 2
REGISTER 3
REGISTER 4
REGISTER 5
REGISTER 6
REGISTER 7
8 LEVEL STACK (VARIABLE WORD LENGTH)
OPTIONAL SECOND REGISTER BANK
DATA STORE
RESIDENT DATA MEMORY RAM (128 x 8)
CONTROL AND TIMING
INT
RESET
PROG
EA
XTAL 1
XTAL 2
ALE
PSEN
SS
RD
WR
INTERRUPT
INITIALIZE
PROM/EXPANDER STROBE
CPU/MEMORY SEPARATE
OSCILLATOR/ XTAL
ADDRESS LATCH STROBE/ CYCLE CLOCK
PROGRAM MEMORY ENABLE
SINGLE STEP
READ WRITE STROBES

Fig. E

14-1-2. Pin configuration

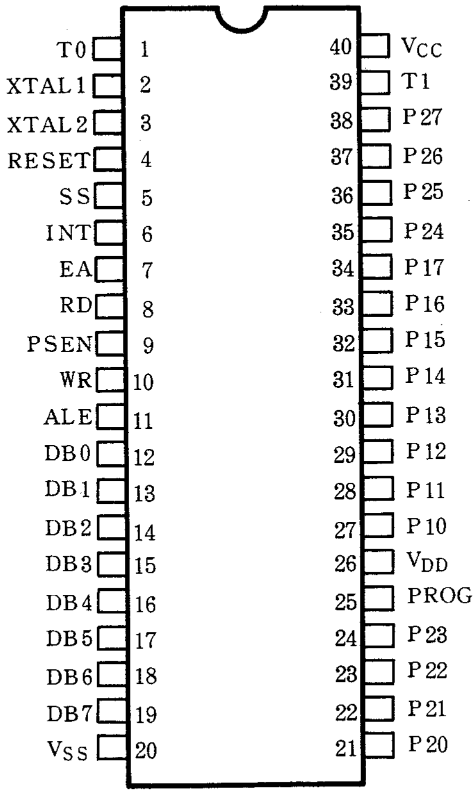
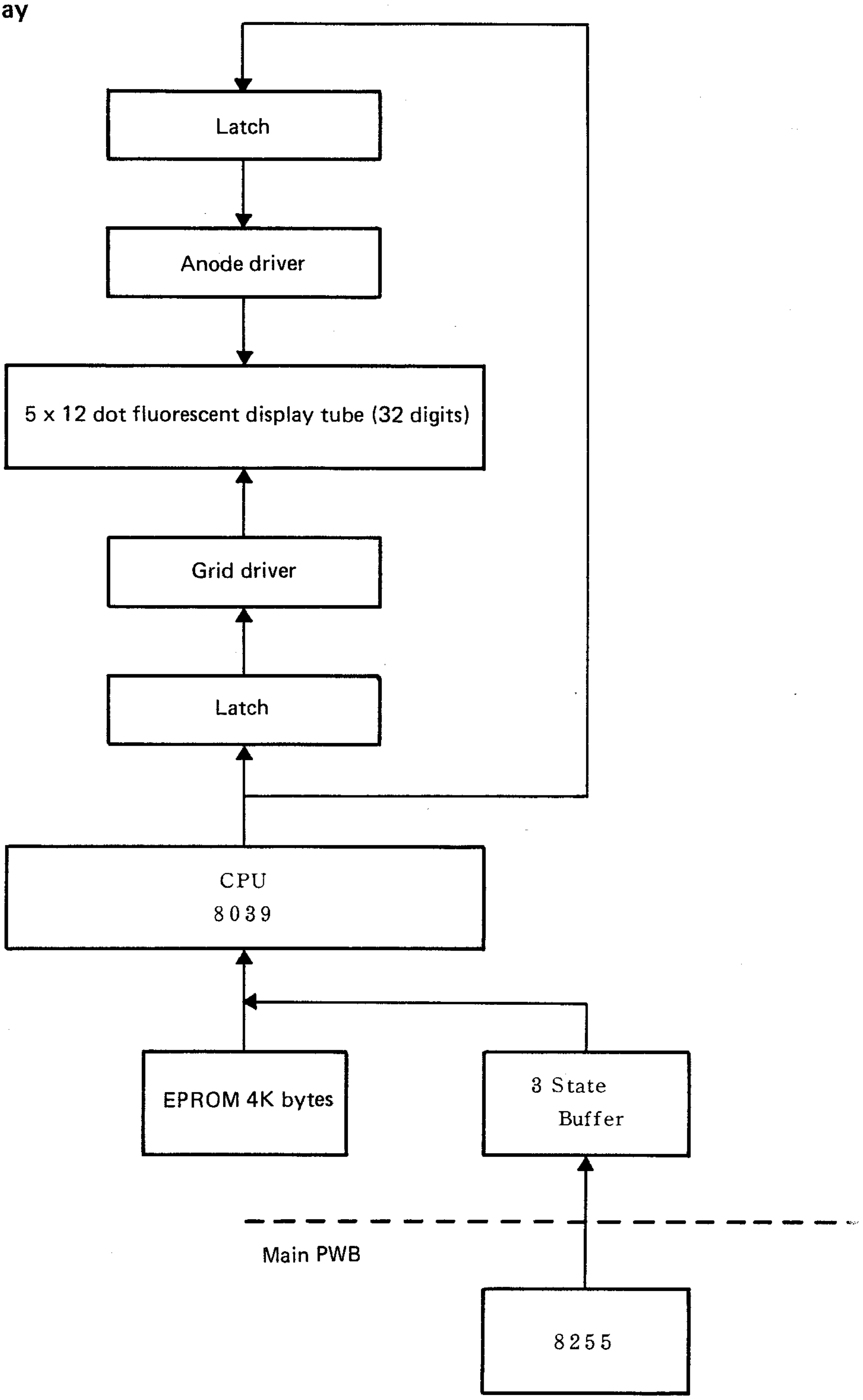

T0 1
XTAL1 2
XTAL2 3
RESET 4
SS 5
INT 6
EA 7
RD 8
PSEN 9
WR 10
ALE 11
DB0 12
DB1 13
DB2 14
DB3 15
DB4 16
DB5 17
DB6 18
DB7 19
VSS 20
40 VCC
39 T1
38 P27
37 P26
36 P25
35 P24
34 P17
33 P16
32 P15
31 P14
30 P13
29 P12
28 P11
27 P10
26 VDD
25 PROG
24 P23
23 P22
22 P21
21 P20

Fig. F

14-1-3. Signal description

Pin No.	CPU name	Signal name	In/Out	Description	Function
27	P10	PD0	Output	Plate data 0 ~ 7	Input data to segment (plate) shift register.
28	P11	PD1			
29	P12	PD2			
30	P13	PD3			
31	P14	PD4			
32	P15	PD5			
33	P16	PD6			
34	P17	PD7			
21	P20		Output	Address line	Indicates high order address of PREM.
22	P21				
23	P22				
24	P23	–	–	–	Not used
35	P24	DTCLK	Output	Display timing clock	Clock for timing shift register
36	P25	DTIN	Output	Display timing in	Serial input for the timing shift resistor
37	P26	$\overline{ACK}$	Output	Acknowledge	Signal to acknowledge data transfer from the CPU.
38	P27	$\overline{BLNK}$	Output	Display blank	Blank timing signal before a change in the display contents
25	PROG	PDCLK	Output	Plate data clock	Clock for the segment (plate) shift register
1	TEST 0	TEST	Input	Character test	Display character test pin. All displayable characters are indicated when connected to GND.
39	TEST 1	$\overline{OBF}$	Input	Output buffer full	Ready for data transfer ready signal from the CPU
8	RD	–	Output	–	Data read signal
11	ALE	–	Output	–	Address latch enable signal
9	PSEN	–	Output	–	Instruction fetch command
4	$\overline{RST}$	$\overline{RST}$	Input	Reset signal	CPU initializing signal
2	X1	–	Input		Clock, 11MHz
3	X2	–			
5	SS	–	–	–	Not used
6	$\overline{INT}$				
7	EA				
10	$\overline{WR}$				
12	DB0		Input/ Output	Data line	8-bit, bidirectional port. Synchronous reads can be performed on this port using $\overline{RD}$ strobe.
13	DB1				
14	DB2				
15	DB3				
16	DB4				
17	DB5				
18	DB6				
19	DB7				
20	V_{SS}	GND	Input	Power supply	Ground (0V)
26	V_{DD}	+5V	Input	Power supply	+5V (VDD is used to provide 15V to the RAM section)
40	VCC	+5V	Input	Power supply	+5V

14-2. Theory of display


Latch
Anode driver
5 x 12 dot fluorescent display tube (32 digits)
Grid driver
Latch
CPU
8039
EPROM 4K bytes
3 State
Buffer
Main PWB
8255

The display unit used for the ZX-500 is a 32-digit, 5 x 12 dot matrix fluorescent display tube.

This display tube is controlled by the 8039 8-bit Microprocessor having 128 x 8 RAM and 27 I/O lines and the EPROM connected to the Microprocessor (Dynamic control).

The character generator and the control program is stored in the EPROM.

The 128 x 8 bit RAM is mainly used for the refresh memory.

The data transfer from the main CPU is achieved through the 8255 on the main PWB.

The typing data supplied through the 8255 is stored in the internal RAM of the 8039 and converted via the EPROM into 5 x 12 dot matrix data before it is sent out through the I/O port.

The character data (5 x 12 bits) is latched by the 74LS164 shift registor and supplied to the anode of the display tube through the driver.

The timing signal required for dynamic control is created in the I/O port and the shift register, and supplied to the grid of the display tube through the driver.

14-3. Display drive voltage generator circuit

The high voltage used in the display tube is generated by a DC-DC converter implemented on the display board.

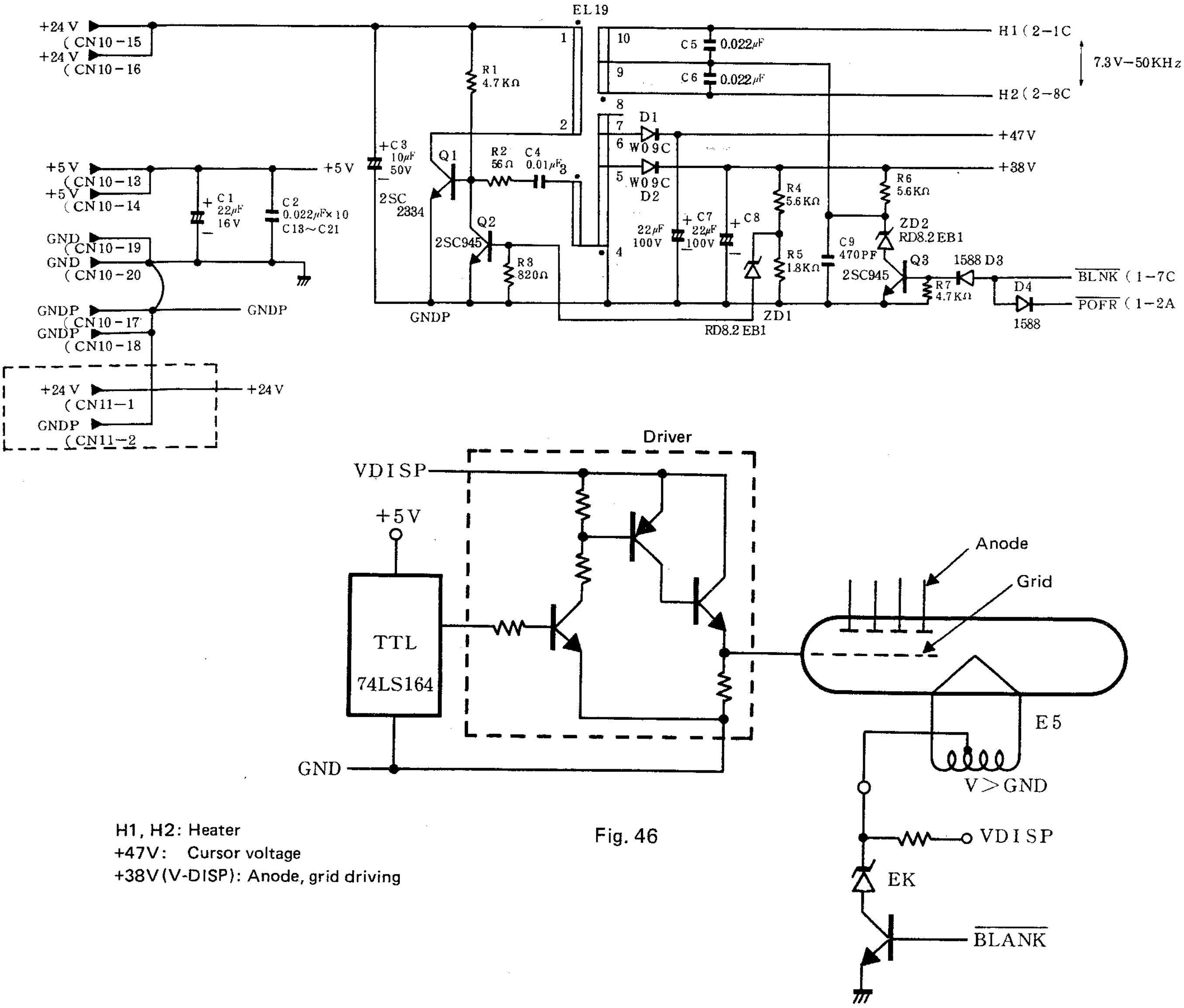

+24 V (CN10-15
+24 V (CN10-16
+5 V (CN10-13
+5 V (CN10-14
GND (CN10-19
GND (CN10-20
GNDP (CN10-17
GNDP (CN10-18
+24 V (CN11-1
GNDP (CN11-2
+24V
+5V
GNDP
C1 22μF 16V
C2 0.022μF×10 C13~C21
C3 10μF 50V
Q1 2SC2334
Q2 2SC945
R1 4.7KΩ
R2 56Ω
C4 0.01μF
R3 820Ω
EL19
C5 0.022μF
C6 0.022μF
D1 W09C
D2 W09C
C7 22μF 100V
C8
22μF 100V
R4 5.6KΩ
R5 1.8KΩ
ZD1 RD8.2 EB1
R6 5.6KΩ
ZD2 RD8.2EB1
C9 470PF
Q3 2SC945
R7 4.7KΩ
1588 D3
D4 1588
H1 (2-1C
H2 (2-8C
7.3V-50KHz
+47V
+38V
BLNK (1-7C
POFR (1-2A
Driver
VDISP
+5V
TTL
74LS164
GND
Anode
Grid
E5
V>GND
VDISP
EK
BLANK

Fig. 46

H1, H2: Heater
+47V: Cursor voltage
+38V (V-DISP): Anode, grid driving

H1 and H2 may fluctuate according to the condition of the load. The signal $\overline{\text{BLNK}}$ of 50kHz to 70kHz oscillation is used to create off time for each display digit to eliminate a double image on the display tube, as well as preparing data.
High state of $\overline{\text{BLNK}}$ when the display tube is on: +7.5V.
Low state of $\overline{\text{BLNK}}$ when the display tube is on: +38V.

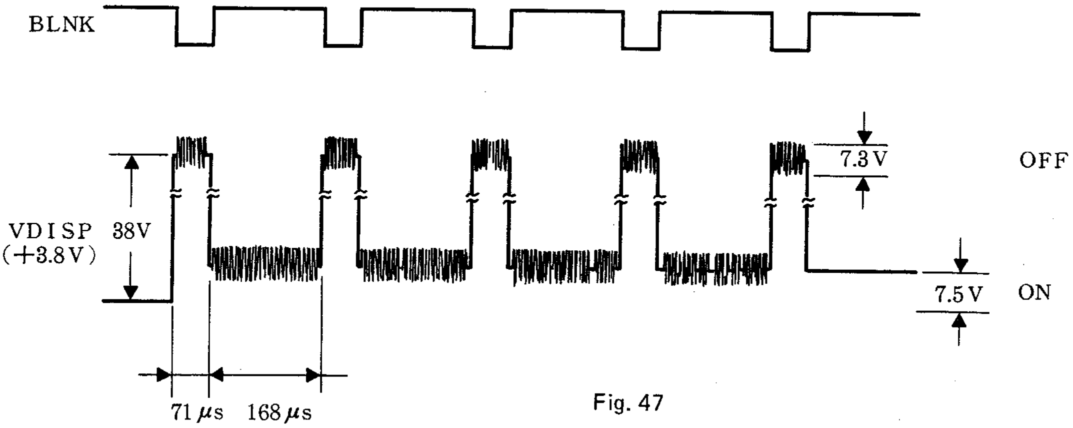

BLNK
VDISP (+3.8V)
38V
7.3V
OFF
7.5V
ON
71μs
168μs

Fig. 47

14-4. Timing chart

Display and data preparation timing chart is shown in Fig. 48.

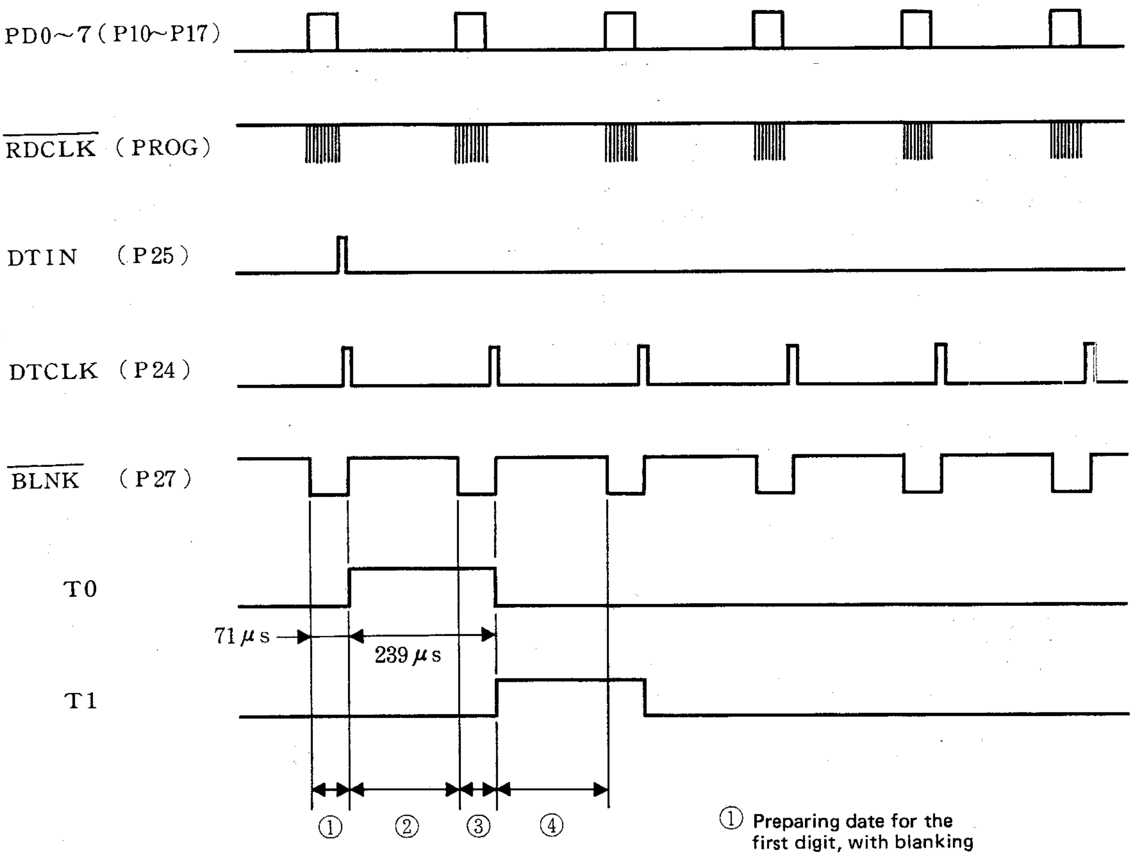

PD0~7 (P10~P17)
RDCLK (PROG)
DTIN (P25)
DTCLK (P24)
BLNK (P27)
T0
T1
71 μs
239 μs
①
②
③
④

Fig. 48

① Preparing date for the first digit, with blanking of 71μs.

② Displaying data on the first digit.

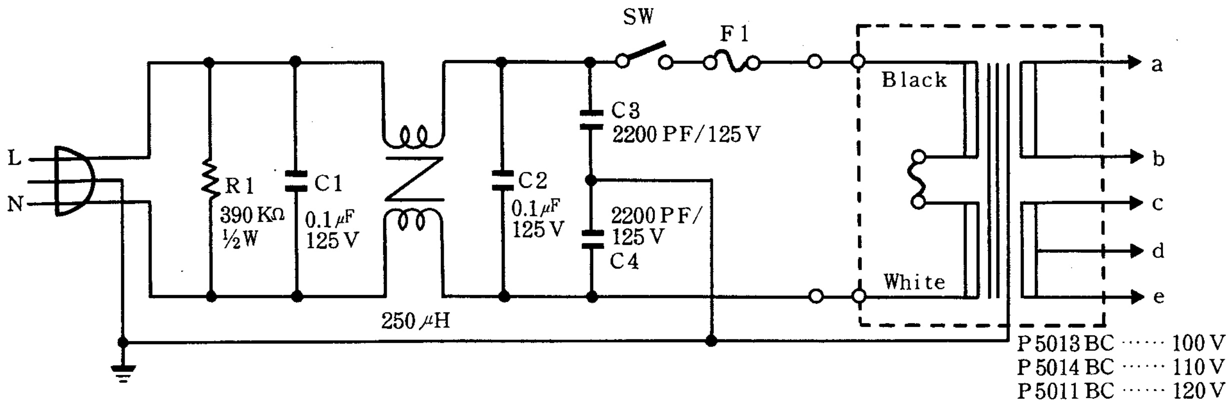
③ Preparing data for the second digit, with blanking of 168μs.

④ Displaying data on the second digit.

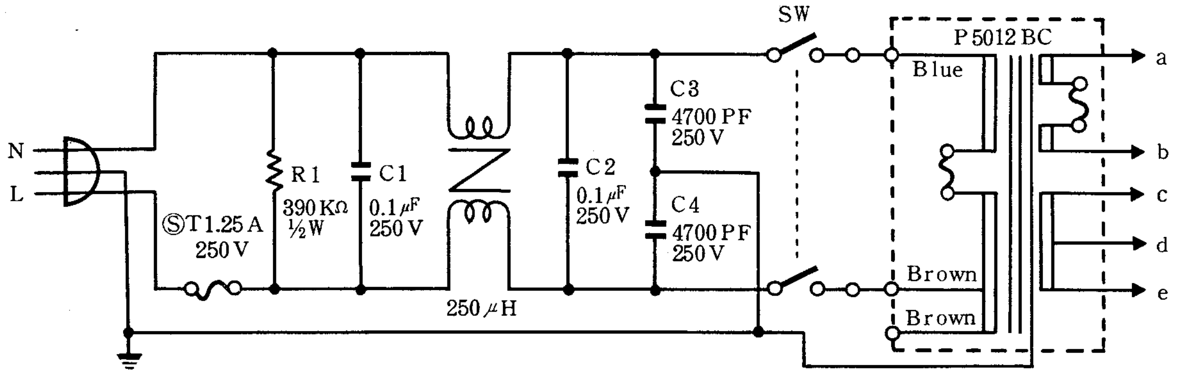
15. POWER SUPPLY CIRCUIT

15-1. Power input (noise filter) circuit and low frequency transformer

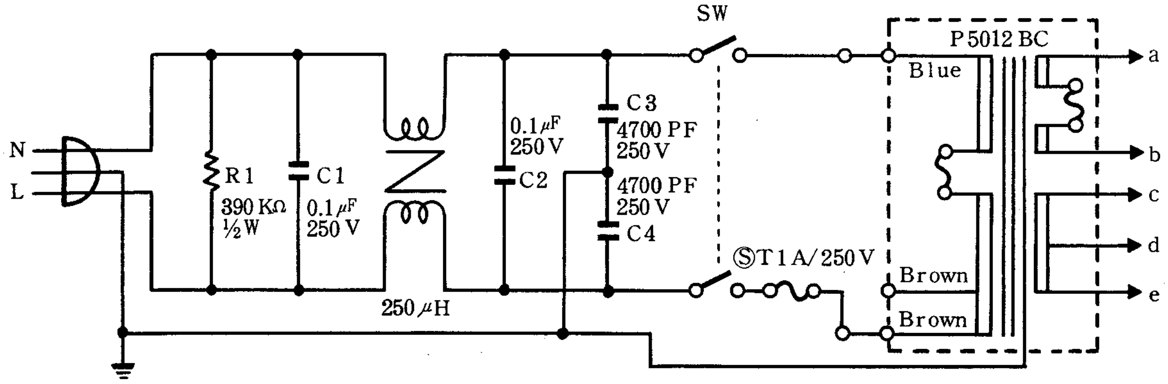
(1) Power input circuitry for AC100V/110V/120V rated machines


SW
F1
L
N
R1
390 KΩ
½W
C1
0.1μF
125 V
250 μH
C2
0.1μF
125 V
C3
2200 PF/125 V
2200 PF/
125 V
C4
Black
White
a
b
c
d
e
P5013BC ······ 100 V
P5014BC ······ 110 V
P5011BC ······ 120 V

(2) Power input circuitry for AC220V rated machine


SW
N
L
Ⓢ T1.25 A
250 V
R1
390 KΩ
½W
C1
0.1μF
250 V
250 μH
C2
0.1μF
250 V
C3
4700 PF
250 V
C4
4700 PF
250 V
P5012 BC
Blue
Brown
Brown
a
b
c
d
e

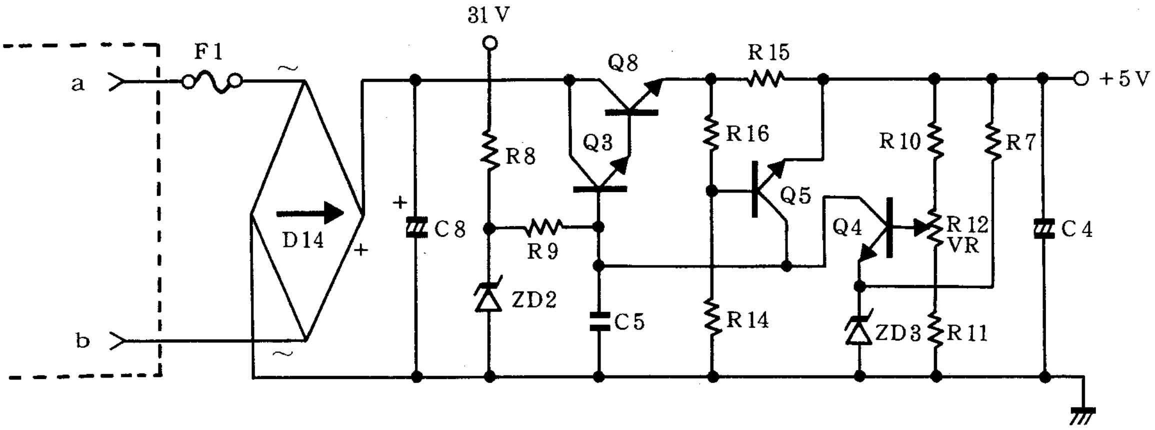
(3) Power input circuitry for AC240V rated machine


SW
N
L
R1
390 KΩ
½W
C1
0.1μF
250 V
250 μH
0.1μF
250 V
C2
C3
4700 PF
250 V
4700 PF
250 V
C4
Ⓢ T1 A/250 V
P5012 BC
Blue
Brown
Brown
a
b
c
d
e

* As shown above, there are three types of power input circuits (noise filter) according to the machine voltage rating. C1, C2, anc coil (line filter) operate for normal mode noise, and C3 and C4 operate for common mode noise. The resistor R1 is a discharge resistance for capacitors C1 and C2.

For the lower frequency transformers, the static shield is used to get rid of noise. The thermal fuse is installed on the primary side of the line. Also, a thermal fuse is installed between the secondary sides of "a" and "b" for the AC220V and AC240V usage transformers.

15-2. +5V circuit


31 V
F1
a
b
D14
+
C8
R8
R9
ZD2
Q8
Q3
C5
R15
R16
Q5
R14
Q4
ZD3
R10
R12
VR
R11
R7
C4
+5 V

(1) R8, ZD2, R9 comprise the reference voltage part (ZD2) of the amplifier (Q3, Q8) and bias resistor (R8, R9).

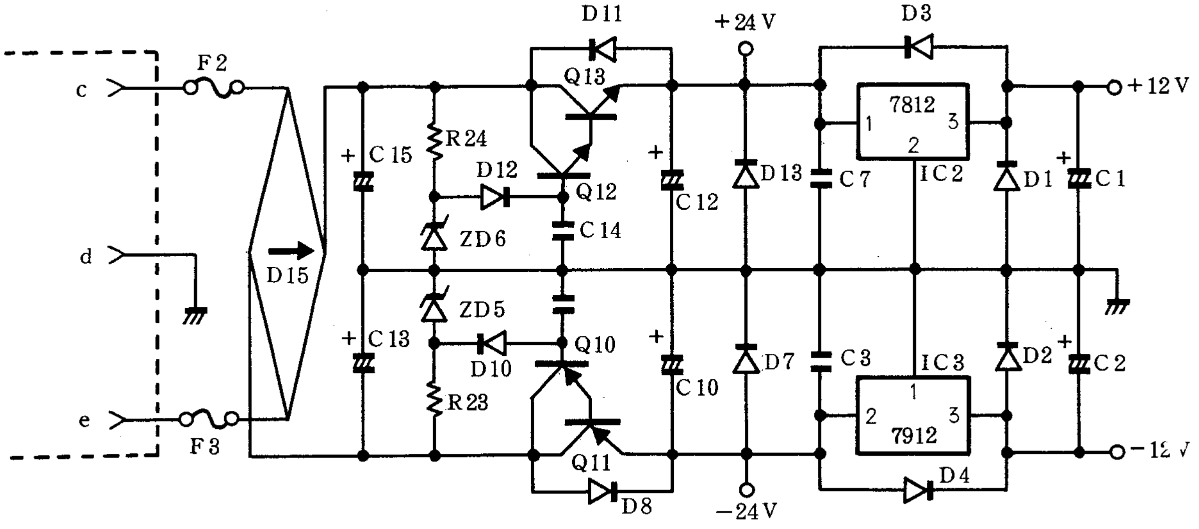
(2) Transistors, Q3 and Q8, are the darlington connected current amplifier.

(3) R7, R8, R11, R12, Q4, ZD3 make the amplifier feedback circuit. R7 and ZD3 are used to establish the refrence voltage for feedback which should be adjusted by the variable resistor R12 (VR).

(4) R14, R15, R16, Q5 comprise the overcurrent protect circuit if a short circuit occurs in the +5V circuit. The maximum value of the current from which current restriction begins is about 2.4A and the current at the time of short circuit is about 1A, having characteristics of the figure "7".

(5) C5 is used to prevent oscillation of the amplifier.

15-3. ±12V and ±24V circuits


F2
c
d
e
F3
D15
C15
C13
R24
D12
ZD6
ZD5
D10
R23
D11
Q13
Q12
C14
Q10
Q11
D8
C12
C10
+24 V
−24 V
D13
D7
C7
C3
D3
7812
1
2
3
IC2
IC3
7912
D4
D1
D2
C1
C2
+12 V
−12 V

(1) ZD5 and ZD6 control ±24V reference voltage, and R23 and R24 are bias resistance of the amplifier (Q10, Q11, Q12 and Q13).

(2) Q10, Q11, Q12, Q13 comprise the ±24V darlington connection current amplifier.

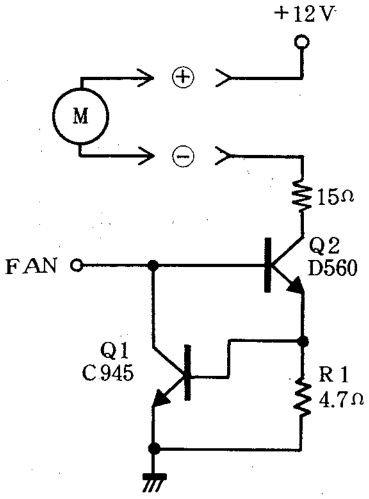
(3) ±12V is supplied from ±24V and regulated by the three-terminal regulators (IC2, IC3).

(4) C3, C7, C11, C14 are used to prevent oscillation.

(5) D3, D4, D8, D11 are the counter voltage protective diodes.

(6) D7, D13 are used to balance potential difference of ±24V, and D1 and D2 potential difference of ±12V.

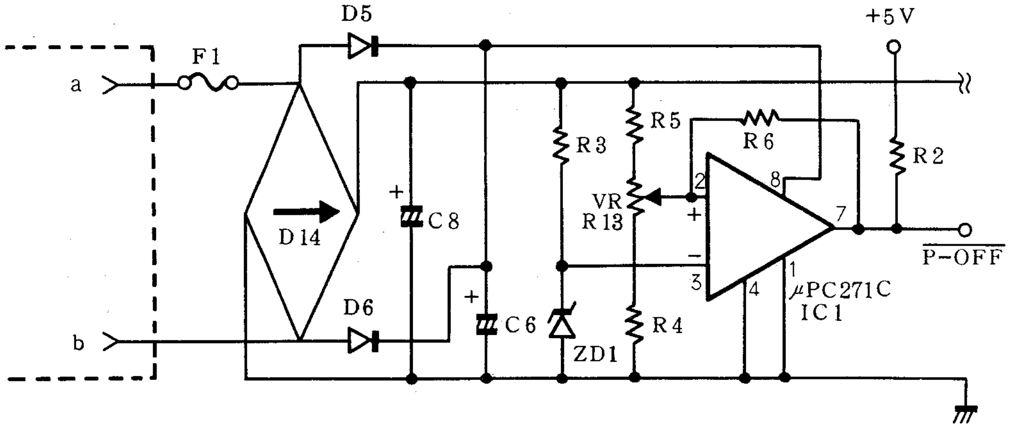
15-4. Fan motor drive circuit


+12V
M
⊕
⊖
15Ω
FAN
Q2
D560
Q1
C945
R1
4.7Ω

* The fan motor is driven by the FAN signal from the Main PWB that activates the transistor 2SD560.

The 2SC945 and 4.7 ohms are used to limit current when the fan motor becomes stalled, and the current is limited to 200mA when the fan motor is stalled.

15-5. P-OFF circuit


D5
+5V
F1
a
b
R5
R6
R3
R2
D14
C8
VR
R13
2
8
7
3
4
1
P-OFF
μPC271C
IC1
D6
C6
ZD1
R4

D5, D6, C6 are the rectifier of the power supplied to the IC UPC271C.

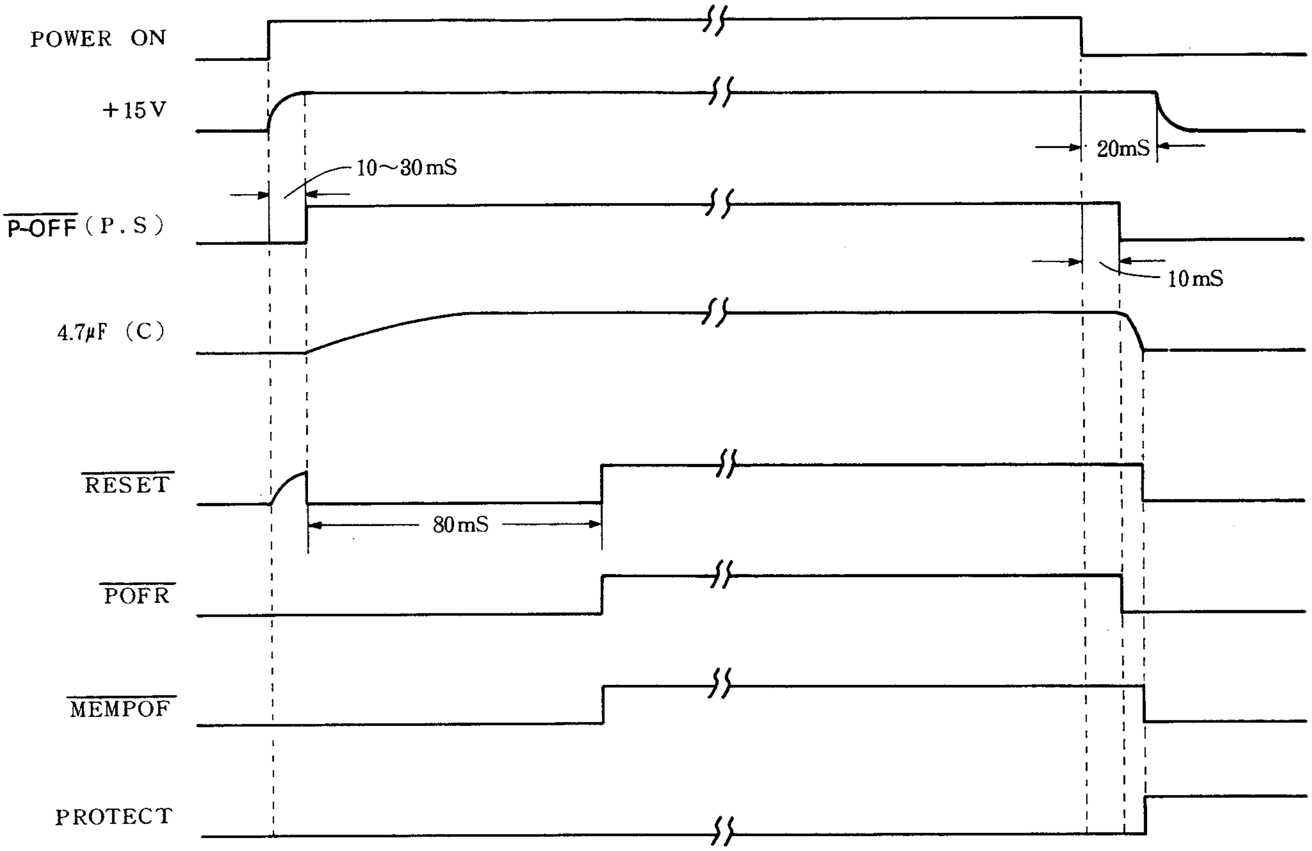
* The reference voltage from the ZD1 is supplied to the inversion input (2-pin) of the comparator UPC271C. When the voltage (2-pin) that resistor divided by R4, R5, and VR becomes higher than the reference voltage, it causes the P-OFF signal to go high level (+5V). When it is below the reference voltage, it goes to the low (GND) level.

R6 is the feedback resistance. A hysterisis characteristics is provided to the input to suppress effects such as ripple.

R2 is a clamp resistor for the comparator UPC271C output.

16. APPENDIX

16.1. P-OFF timing chart


POWER ON
+15V
10~30mS
20mS
P-OFF (P.S)
10mS
4.7μF (C)
RESET
80mS
POFR
MEMPOF
PROTECT

II. SCHEMATIC DRAWINGS & PARTS LOCATION DIAGRAMS

CONTENTS

1. ZX-400
  - 1-1. MAIN PWB 2-1
  - 1-2. KEYBOARD 2-7

2. ZX-500
  - 2-1. MAIN PWB 2-9
  - 2-2. DISPLAY PWB 2-17
  - 2-3. KEYBOARD 2-21
  - 2-4. OPTION MEMORY PWB 2-23

3. ZX-400/500
  - 3-1. POWER SUPPLY PWB 2-25
  - 3-2. CARRIAGE PWB 2-27

NOMENCLATURE AND SYMBOL DEFINITIONS

1. IC

1-1. IC names

IC names are noted in the following manner:

(a) For IC's of the SN74 series, some of IC's are indicated without prefix SN or SN74, but the rest of them are described by a full name. For popular kinds of gates and flipflops, descriptions are omitted for some of them.

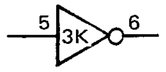
EX: LS04→SN74LS04 7438→SN7438 SN7433→SN7433

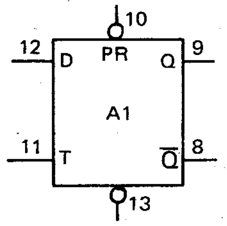
(b) Except the SN74 series, all of IC's are indicated by a full name.

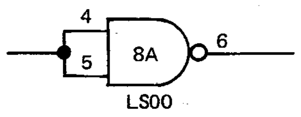
1-2. Location number and pin numbers

IC location number on the board and IC numbers are noted in the following manner in the schematic.

EX.





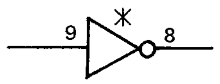


As a general rule, figure such as 3K, A1, and 8A described inside the MIL symbol, represents the IC location. However, some of them are noted above or over top right corner or the MIL symbol. Numbers noted outside the MIL symbol such as 4, 5, 6, 8, 9, 10, 11, 12, 13, and so, indicate IC pin numbers.

1-3. Special MIL symbols

(a) Open collection on output pin is identified with the mark ✳.

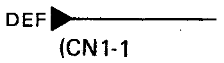
EX:

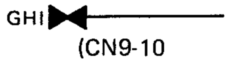


2. Connector input/output pins

(a) A dark arrowhead is used in the schematic to represent input or output on the connector, and the connector number is prefixed with a left parenthesis.

EX:



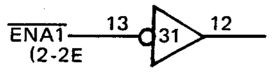


Input to #1 pin of the connector CN1.
(Be careful as the connector name changes according to the board.)

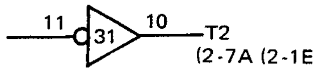
Bidirectional input/output to/from #10 pin of the connector CN9.

(b) Lines in the schematic not noted with an arrowhead indicate that they are used in that particular board only. The symbol noted below the signal name or parenthesized within a block shows where it is connected to or from.

EX:



It shows that the signal is connected from 2E of the schematic No. 2.



It shows that the T2 signal is connected from 7A of the schematic No.2, 1E from the schematic No.2.

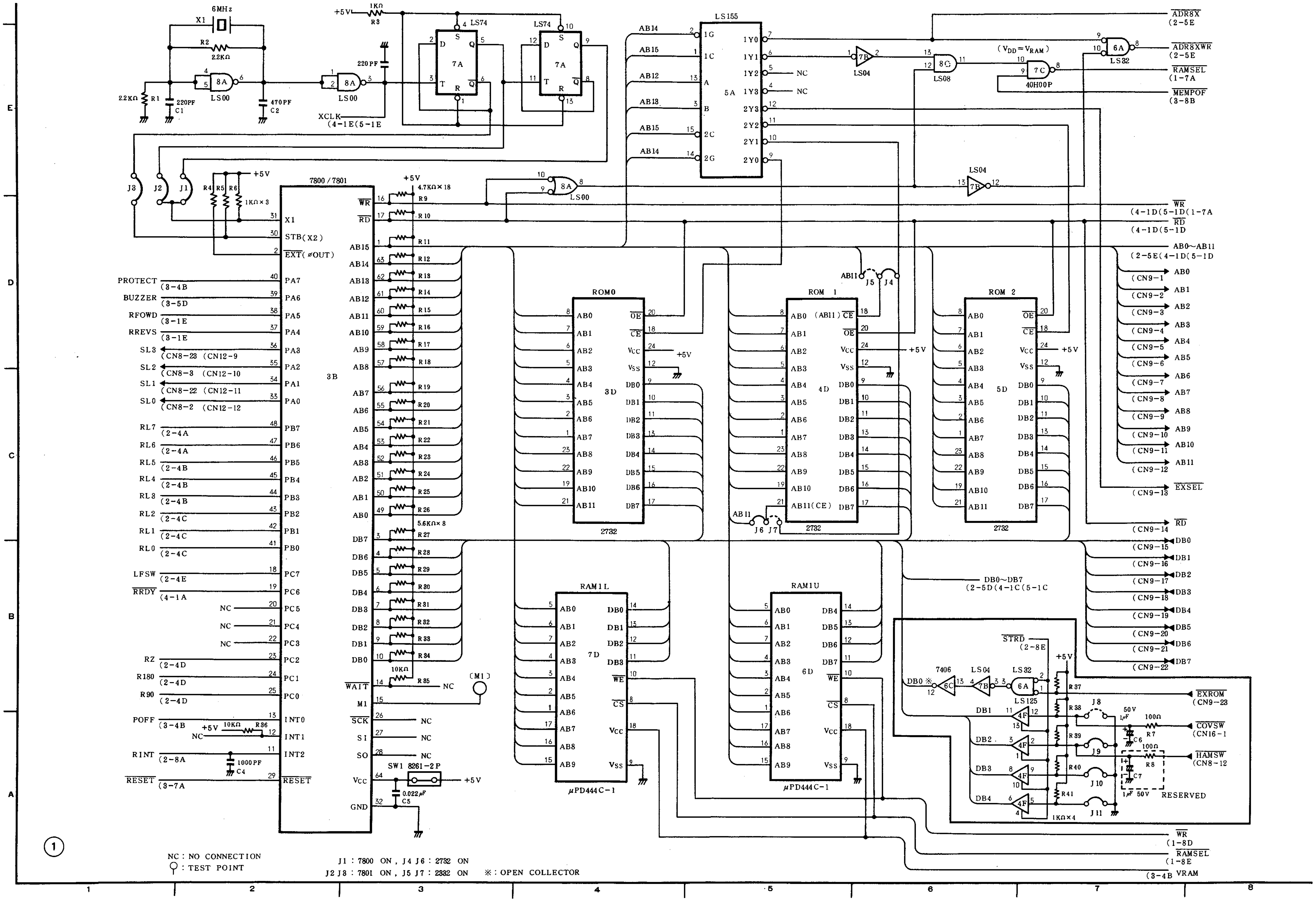
3. Single name

A bar is superscripted over the signal name of a negative true signal.

EX: ABC

1. ZX-400

1-1. MAIN PWB (CPU/MEMORIES)

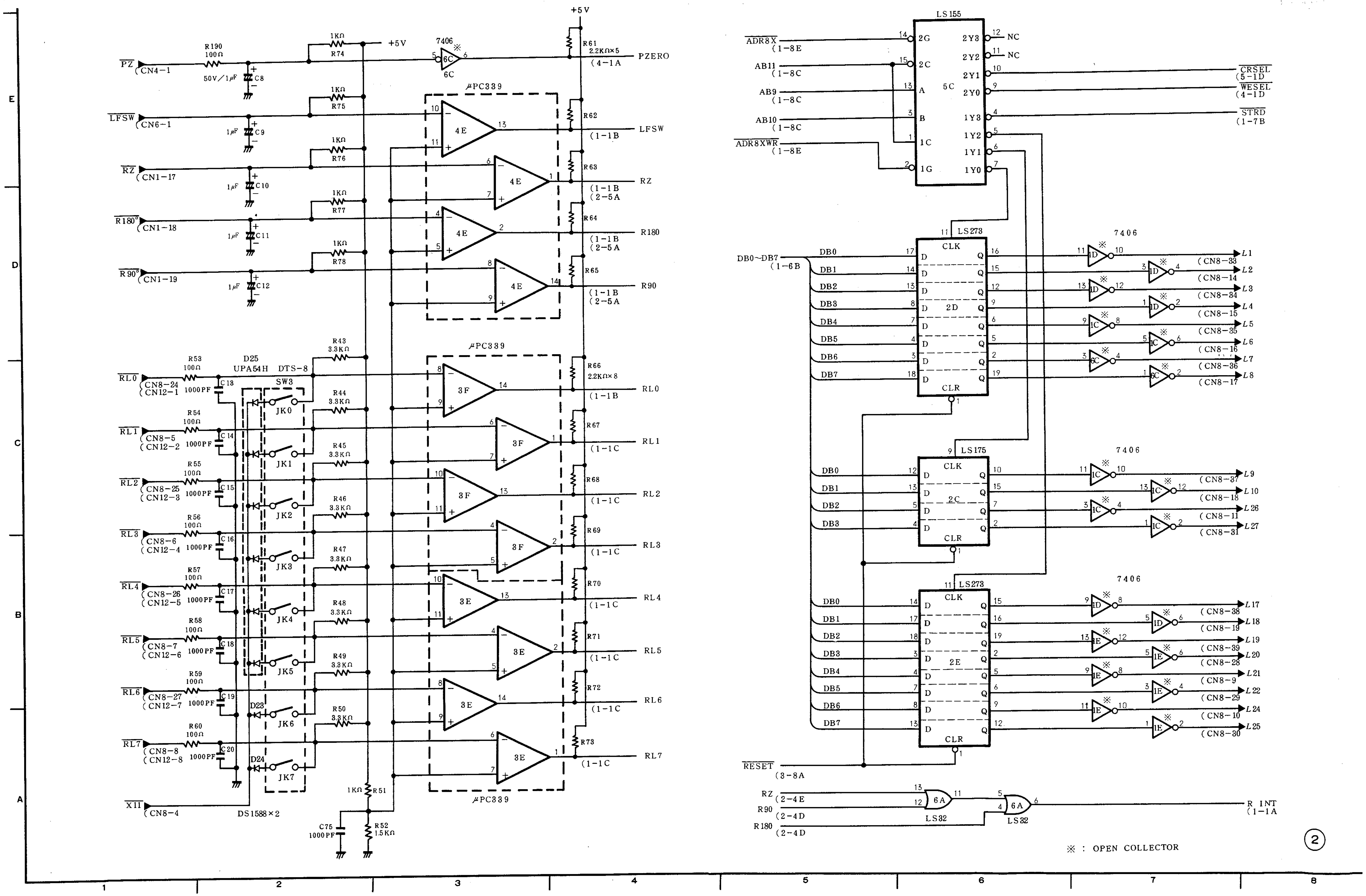

6MHz
X1
R2 2.2KΩ
22KΩ R1
220PF C1
470PF C2
8A
LS00
+5V
1KΩ R3
220PF
XCLK (4-1E(5-1E
LS74
7A
J3
J2
J1
R4 R5 R6 1KΩ×3
7800 / 7801
3B
X1
STB(X2)
EXT(φOUT)
PROTECT (3-4B
BUZZER (3-5D
RFOWD (3-1E
RREVS (3-1E
SL3 (CN8-23 (CN12-9
SL2 (CN8-3 (CN12-10
SL1 (CN8-22 (CN12-11
SL0 (CN8-2 (CN12-12
RL7 (2-4A
RL6 (2-4A
RL5 (2-4B
RL4 (2-4B
RL3 (2-4B
RL2 (2-4C
RL1 (2-4C
RL0 (2-4C
LFSW (2-4E
RRDY (4-1A
RZ (2-4D
R180 (2-4D
R90 (2-4D
POFF (3-4B
RINT (2-8A
RESET (3-7A
1000PF C4
4.7KΩ×18
5.6KΩ×8
10KΩ R85
WAIT
M1
SCK
SI
SO
SW1 8261-2P
0.022μF C5
Vcc
GND
(M1)
NC
LS155
5A
AB14
AB15
AB12
AB13
1Y0 1Y1 1Y2 1Y3 2Y3 2Y2 2Y1 2Y0
LS04
7B
LS08
8C
(VDD=VRAM)
7C
40H00P
6A
LS32
ADR8X (2-5E
ADR8XWR (2-5E
RAMSEL (1-7A
MEMPOF (3-8B
WR (4-1D(5-1D(1-7A
RD (4-1D(5-1D
AB0~AB11 (2-5E(4-1D(5-1D
ROM0
3D
2732
ROM 1
4D
ROM 2
5D
J5 J4
J6 J7
EXSEL
RAM1L
7D
μPD444C-1
RAM1U
6D
DB0~DB7 (2-5D(4-1C(5-1C
(CN9-1 … CN9-22)
STRD (2-8E
7406
6C
LS125
4F
EXROM (CN9-23
COVSW (CN16-1
HAMSW (CN8-12
R37 R38 R39 R40 R41 1KΩ×4
J8 J9 J10 J11
50V 1μF C6
100Ω R7
100Ω R8
C7
RESERVED
WR (1-8D
RAMSEL (1-8E
(3-4B VRAM
①

NC : NO CONNECTION
⚲ : TEST POINT

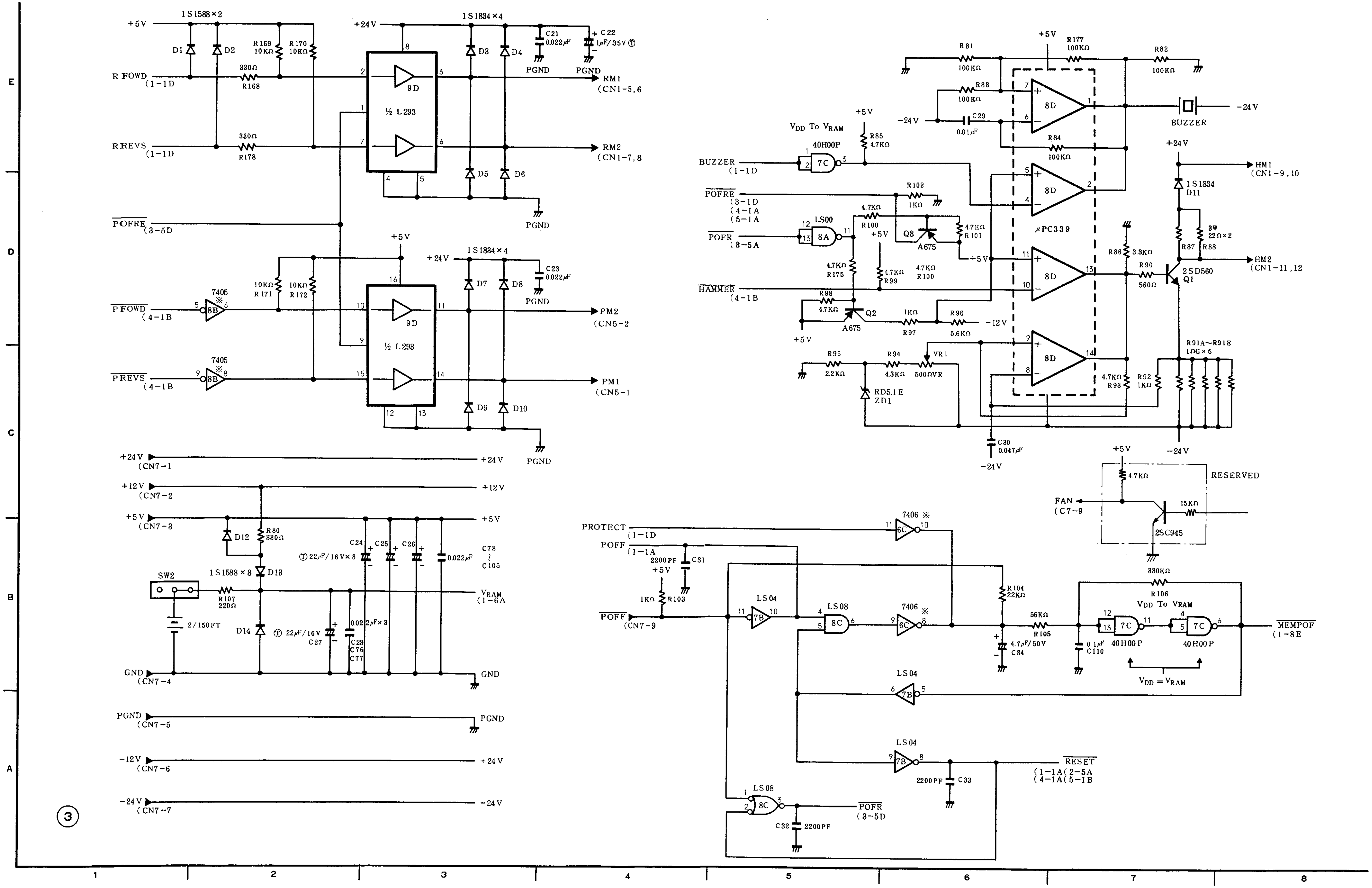
J1 : 7800 ON , J4 J6 : 2732 ON
J2 J8 : 7801 ON , J5 J7 : 2332 ON

※ : OPEN COLLECTOR

(KEY SW/LED IF)

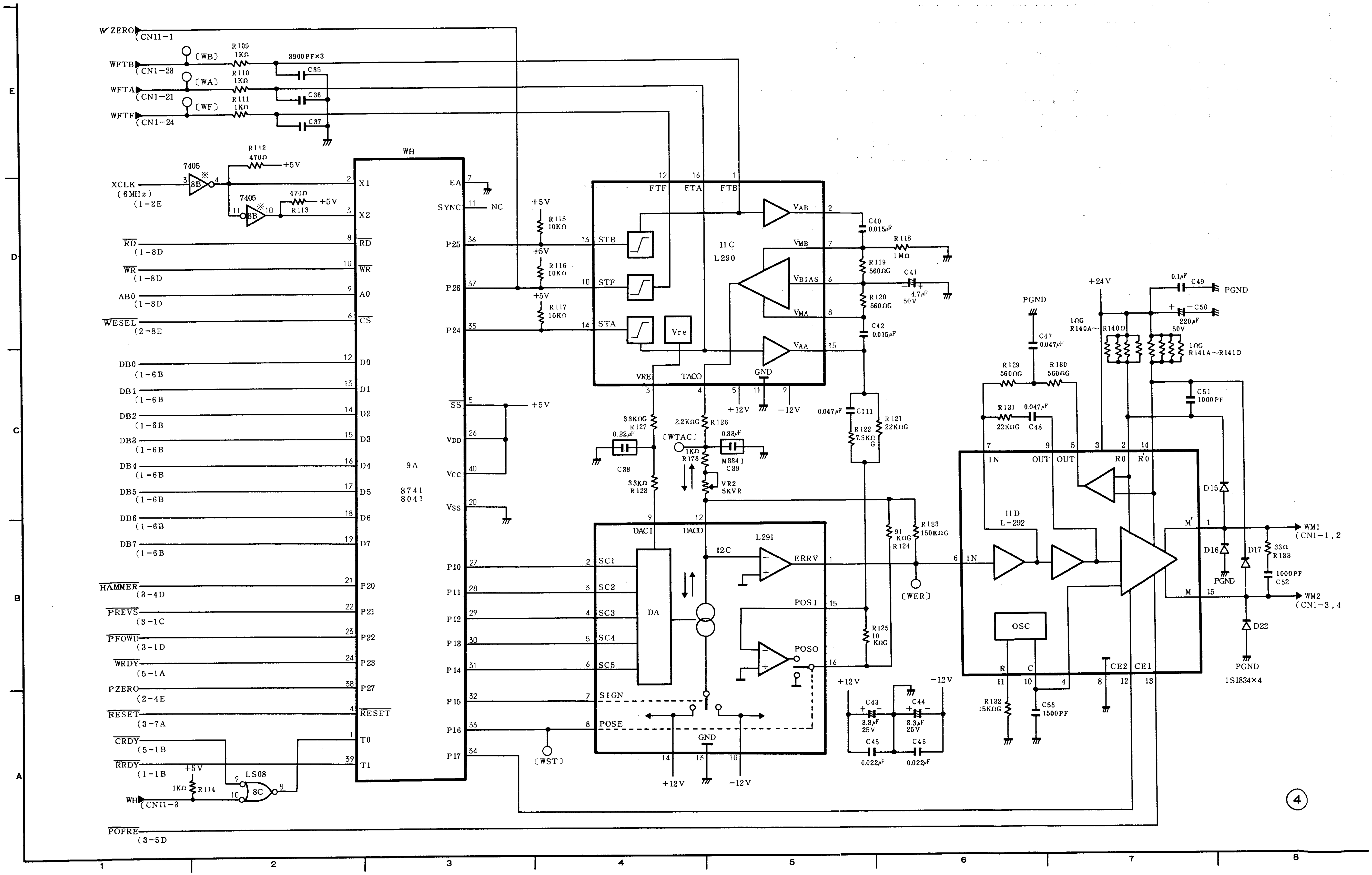

E
D
C
B
A
1
2
3
4
5
6
7
8
+5V
PZ (CN4-1
R190 100Ω
50V/1μF C8
1KΩ R74
+5V
7406 ※ 6C
R61 2.2KΩ×5 (4-1A
PZERO
LFSW (CN6-1
1μF C9
1KΩ R75
μPC339
4E
R62 (1-1B
LFSW
RZ (CN1-17
1μF C10
1KΩ R76
R63 (1-1B (2-5A
RZ
R180° (CN1-18
1μF C11
1KΩ R77
R64 (1-1B (2-5A
R180
R90° (CN1-19
1μF C12
1KΩ R78
R65 (1-1B (2-5A
R90
R43 3.3KΩ
μPC339
3F
3E
R66 2.2KΩ×8
RL0 (CN8-24 (CN12-1
R53 100Ω
C13 1000PF
D25 UPA54H
DTS-8 SW3
JK0
R44 3.3KΩ
RL0 (1-1B
RL1 (CN8-5 (CN12-2
R54 100Ω
C14 1000PF
JK1
R45 3.3KΩ
R67 (1-1C
RL1
RL2 (CN8-25 (CN12-3
R55 100Ω
C15 1000PF
JK2
R46 3.3KΩ
R68 (1-1C
RL2
RL3 (CN8-6 (CN12-4
R56 100Ω
C16 1000PF
JK3
R47 3.3KΩ
R69 (1-1C
RL3
RL4 (CN8-26 (CN12-5
R57 100Ω
C17 1000PF
JK4
R48 3.3KΩ
R70 (1-1C
RL4
RL5 (CN8-7 (CN12-6
R58 100Ω
C18 1000PF
JK5
R49 3.3KΩ
R71 (1-1C
RL5
RL6 (CN8-27 (CN12-7
R59 100Ω
C19 1000PF
D23
JK6
R50 3.3KΩ
R72 (1-1C
RL6
RL7 (CN8-8 (CN12-8
R60 100Ω
C20 1000PF
D24
JK7
R73 (1-1C
RL7
X11 (CN8-4
DS1588×2
1KΩ R51
C75 1000PF
R52 1.5KΩ
μPC339
LS155
5C
ADR8X (1-8E
AB11 (1-8C
AB9 (1-8C
AB10 (1-8C
ADR8XWR (1-8E
2G 2C A B 1C 1G
2Y3 2Y2 2Y1 2Y0 1Y3 1Y2 1Y1 1Y0
NC
NC
CRSEL (5-1D
WESEL (4-1D
STRD (1-7B
LS273
2D
DB0~DB7 (1-6B
DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7
CLK
CLR
7406
L1 (CN8-33
L2 (CN8-14
L3 (CN8-34
L4 (CN8-15
L5 (CN8-35
L6 (CN8-16
L7 (CN8-36
L8 (CN8-17
LS175
2C
L9 (CN8-37
L10 (CN8-18
L26 (CN8-11
L27 (CN8-31
LS273
2E
L17 (CN8-38
L18 (CN8-19
L19 (CN8-39
L20 (CN8-28
L21 (CN8-9
L22 (CN8-29
L24 (CN8-10
L25 (CN8-30
RESET (3-8A
RZ (2-4E
R90 (2-4D
R180 (2-4D
6A LS32
6A LS32
R INT (1-1A
※ : OPEN COLLECTOR
②

(MOTOR HAMMER DRIVE)

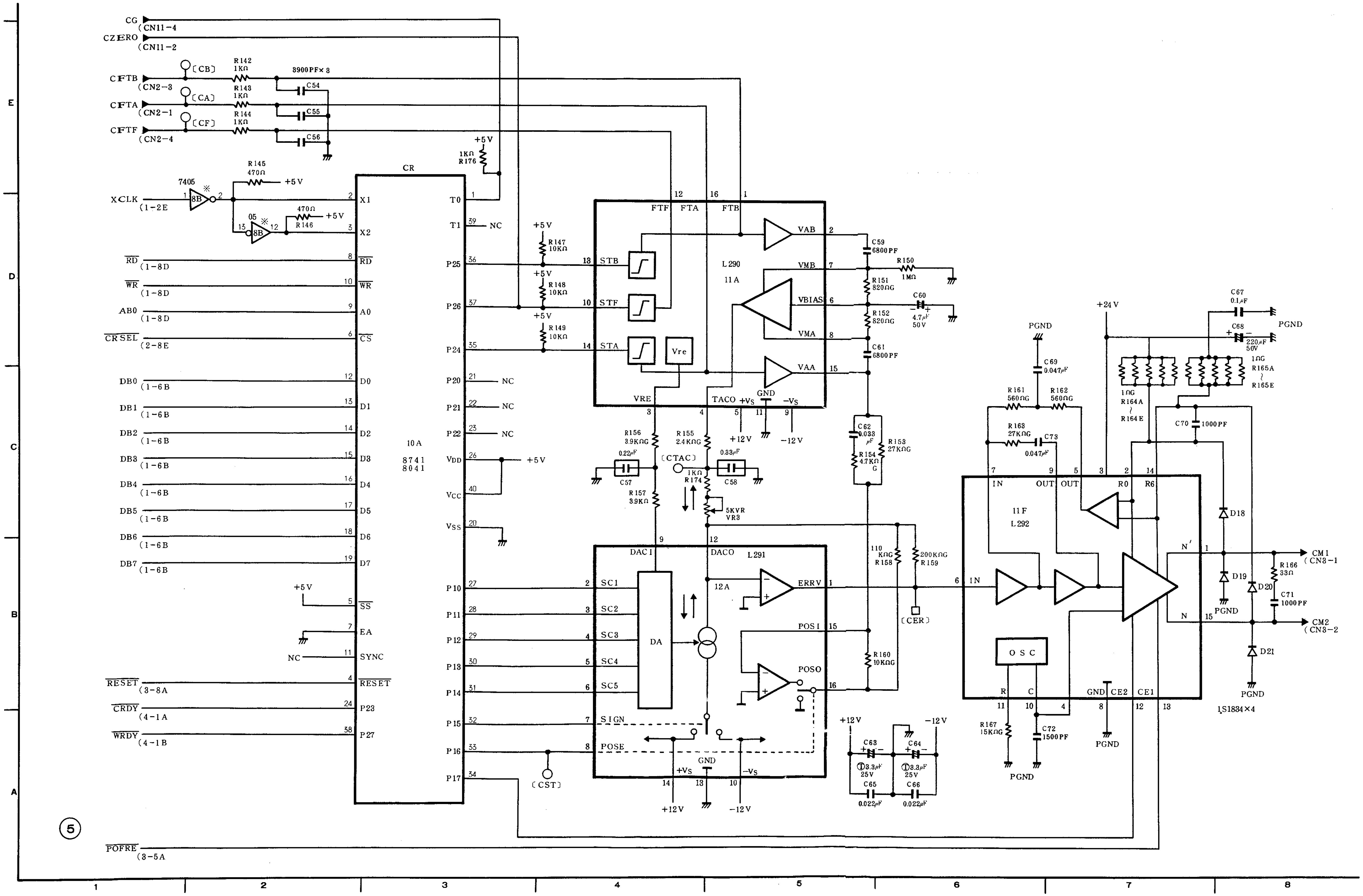


E
D
C
B
A
1
2
3
4
5
6
7
8
③
+5V
1S1588×2
D1
D2
R169 10KΩ
R170 10KΩ
R FOWD (1-1D
330Ω R168
R REVS (1-1D
330Ω R178
+24V
1S1884×4
8
2
3
9D
1
½ L293
7
6
4
5
D3
D4
D5
D6
C21 0.022μF
C22 1μF/35V Ⓣ
PGND
RM1 (CN1-5,6
RM2 (CN1-7,8
POFRE (3-5D
+5V
10KΩ R171
10KΩ R172
7405 ※
P FOWD (4-1B
8B
P REVS (4-1B
16
10
11
9
15
14
12
13
D7
D8
D9
D10
C23 0.022μF
PM2 (CN5-2
PM1 (CN5-1
+24V (CN7-1
+12V (CN7-2
+5V (CN7-3
GND (CN7-4
PGND (CN7-5
-12V (CN7-6
-24V (CN7-7
+24V
+12V
+5V
GND
PGND
-24V
D12
R80 330Ω
1S1588×3
D13
D14
SW2
R107 220Ω
2/150FT
C24 C25 C26
Ⓣ 22μF/16V×3
0.022μF
C78 ~ C105
VRAM (1-6A
Ⓣ 22μF/16V C27
0.022μF×3
C28 C76 C77
+5V
R81 100KΩ
R177 100KΩ
R82 100KΩ
R83 100KΩ
-24V
C29 0.01μF
R84 100KΩ
8D
μPC339
BUZZER
-24V
VDD To VRAM
40H00P
7C
R85 4.7KΩ
BUZZER (1-1D
POFRE (3-1D (4-1A (5-1A
R102 1KΩ
4.7KΩ R100
Q3 A675
4.7KΩ R101
LS00
8A
POFR (3-5A
4.7KΩ R175
4.7KΩ R99
4.7KΩ R100
HAMMER (4-1B
R98 4.7KΩ
Q2 A675
1KΩ R97
R96 5.6KΩ
-12V
+5V
R95 2.2KΩ
R94 4.3KΩ
VR1 500ΩVR
RD5.1E ZD1
C30 0.047μF
-24V
+24V
HM1 (CN1-9,10
1S1834 D11
3W 22Ω×2
R87 R88
R86 3.3KΩ
R90 560Ω
2SD560 Q1
HM2 (CN1-11,12
R91A~R91E 1ΩG×5
4.7KΩ R93
R92 1KΩ
-24V
+5V
4.7KΩ
RESERVED
FAN (C7-9
15KΩ
2SC945
PROTECT (1-1D
7406 ※
6C
POFF (1-1A
2200PF C31
+5V
1KΩ R103
POFF (CN7-9
LS04
7B
LS08
8C
R104 22KΩ
56KΩ R105
4.7μF/50V C34
0.1μF C110
330KΩ R106
VDD To VRAM
40H00P
MEMPOF (1-8E
VDD = VRAM
RESET (1-1A(2-5A (4-1A(5-1B
2200PF C33
POFR (3-5D
C32 2200PF

(WHEEL SERVO)

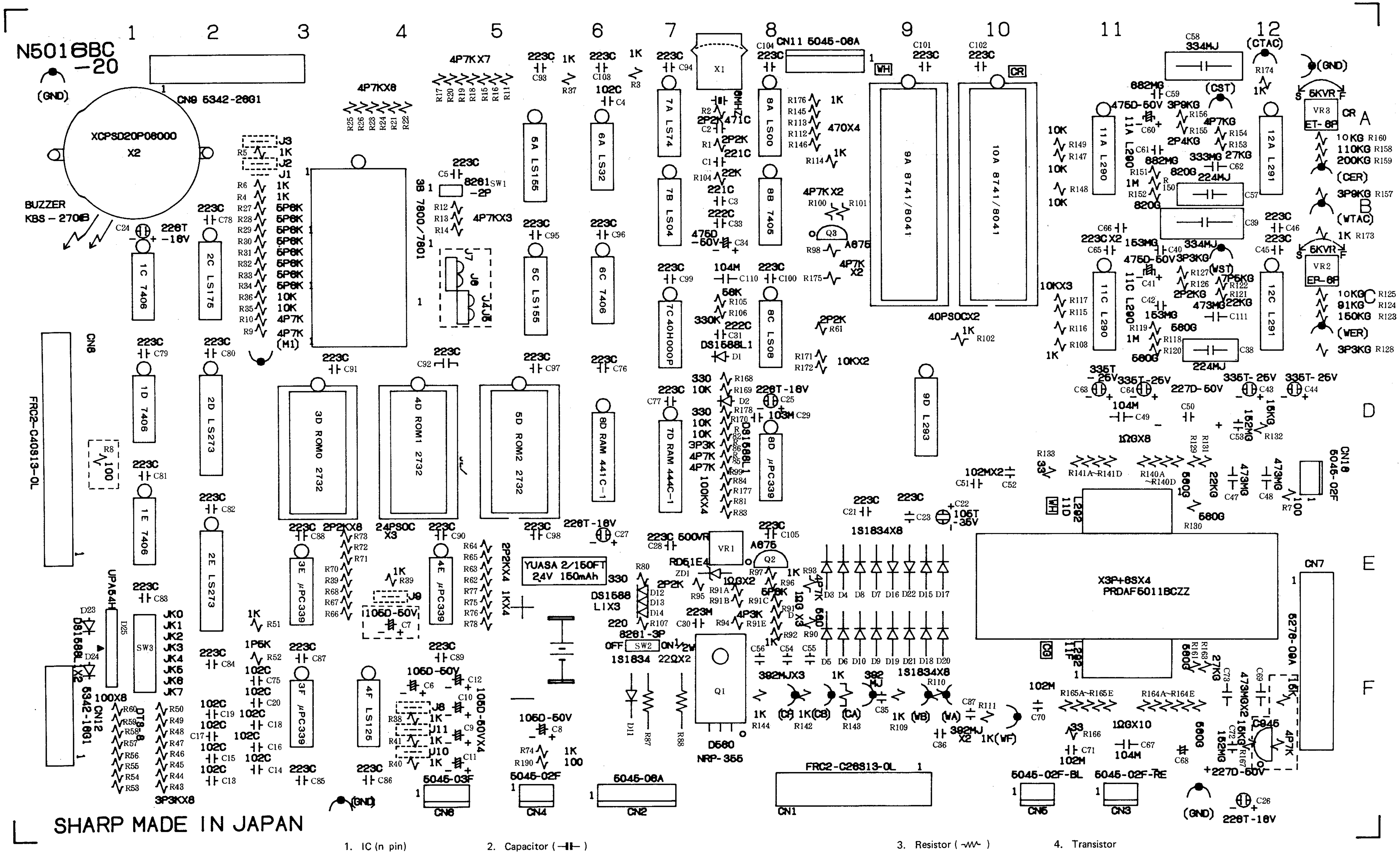

W ZERO (CN11-1
WFTB (CN1-23
WFTA (CN1-21
WFTF (CN1-24
[WB]
[WA]
[WF]
R109 1KΩ
R110 1KΩ
R111 1KΩ
3900PF×3
C35
C36
C37
R112 470Ω +5V
7405
8B
XCLK (6MHz) (1-2E
470Ω +5V R113
WH
X1
X2
RD (1-8D
WR (1-8D
AB0 (1-8D
WESEL (2-8E
CS
A0
DB0 (1-6B
DB1 (1-6B
DB2 (1-6B
DB3 (1-6B
DB4 (1-6B
DB5 (1-6B
DB6 (1-6B
DB7 (1-6B
D0
D1
D2
D3
D4
D5
D6
D7
9A
8741
8041
HAMMER (3-4D
PREVS (3-1C
PFOWD (3-1D
WRDY (5-1A
PZERO (2-4E
RESET (3-7A
CRDY (5-1B
RRDY (1-1B
P20
P21
P22
P23
P27
RESET
T0
T1
+5V
1KΩ R114
LS08
8C
WH (CN11-3
POFRE (3-5D
EA
SYNC
NC
P25
P26
P24
SS
VDD
Vcc
Vss
+5V
P10
P11
P12
P13
P14
P15
P16
P17
[WST]
R115 10KΩ
R116 10KΩ
R117 10KΩ
STB
STF
STA
FTF
FTA
FTB
11C
L290
Vre
VRE
TACO
GND
VAB
VMB
VBIAS
VMA
VAA
+12V
−12V
C40 0.015μF
R118 1MΩ
R119 560ΩG
C41 4.7μF 50V
R120 560ΩG
C42 0.015μF
3.3KΩG R127
0.22μF
C38
[WTAC]
2.2KΩG R126
0.33μF
M334J C39
1KΩ R173
VR2 5KVR
3.3KΩ R128
0.047μF C111
R122 7.5KΩ G
R121 22KΩG
91 KΩG R124
R123 150KΩG
DAC1
DACO
L291
SC1
SC2
SC3
SC4
SC5
SIGN
POSE
DA
I2C
ERRV
POSI
POSO
[WER]
R125 10 KΩG
+12V
C43 3.3μF 25V
C44 3.3μF 25V
−12V
C45 0.022μF
C46 0.022μF
+24V
PGND
C47 0.047μF
R129 560ΩG
R130 560ΩG
R131 22KΩG
0.047μF C48
1ΩG R140A〜R140D
1ΩG R141A〜R141D
0.1μF C49
C50 220μF 50V
C51 1000PF
11D
L-292
IN
OUT
RO
OSC
R
C
CE2
CE1
R132 15KΩG
C53 1500PF
D15
D16
D17
D22
33Ω R133
1000PF C52
M'
M
WM1 (CN1-1, 2
WM2 (CN1-3, 4
1S1834×4
④
A
B
C
D
E
1
2
3
4
5
6
7
8

(CARRIAGE SERVO)

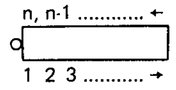


CG (CN11-4
CZERO (CN11-2
CFTB (CN2-3
CFTA (CN2-1
CFTF (CN2-4
〔CB〕
〔CA〕
〔CF〕
R142 1KΩ
R143 1KΩ
R144 1KΩ
3900PF×3
C54
C55
C56
+5V
1KΩ R176
R145 470Ω +5V
7405
1 8B 2
※
XCLK (1-2E
05
13 8B 12
470Ω +5V R146
RD (1-8D
WR (1-8D
AB0 (1-8D
CR SEL (2-8E
DB0 (1-6B
DB1 (1-6B
DB2 (1-6B
DB3 (1-6B
DB4 (1-6B
DB5 (1-6B
DB6 (1-6B
DB7 (1-6B
+5V
NC
RESET (3-8A
CRDY (4-1A
WRDY (4-1B
POFRE (3-5A
CR
X1
X2
RD
WR
A0
CS
D0
D1
D2
D3
D4
D5
D6
D7
SS
EA
SYNC
RESET
P23
P27
10A
8741
8041
T0
T1
P25
P26
P24
P20
P21
P22
VDD
Vcc
Vss
P10
P11
P12
P13
P14
P15
P16
P17
NC
+5V
〔CST〕
+5V R147 10KΩ
+5V R148 10KΩ
+5V R149 10KΩ
STB
STF
STA
FTF
FTA
FTB
L290
11A
VAB
VMB
VBIAS
VMA
VAA
Vre
VRE
TACO +Vs
GND
-Vs
+12V
-12V
R156 3.9KΩG
R155 2.4KΩG
0.22μF C57
〔CTAC〕
1KΩ R174
0.33μF C58
R157 3.9KΩ
5KVR VR3
C59 6800PF
R150 1MΩ
R151 820ΩG
C60 4.7μF 50V
R152 820ΩG
C61 6800PF
C62 0.033μF
R154 4.7KΩG
R153 27KΩG
110KΩG R158
200KΩG R159
DAC I
DACO
L291
SC1
SC2
SC3
SC4
SC5
SIGN
POSE
DA
12A
ERRV
POS I
POSO
〔CER〕
R160 10KΩG
+Vs
GND
-Vs
+12V
-12V
C63 3.3μF 25V
C64 3.3μF 25V
C65 0.022μF
C66 0.022μF
PGND
C69 0.047μF
R161 560ΩG
R162 560ΩG
R163 27KΩG
C73 0.047μF
+24V
C67 0.1μF
C68 220μF 50V
PGND
1ΩG R164A ~ R164E
1ΩG R165A ~ R165E
C70 1000PF
11F
L292
IN
OUT
OUT
R0
R6
N′
N
OSC
R
C
GND
CE2
CE1
R167 15KΩG
C72 1500PF
PGND
D18
D19
D20
D21
R166 33Ω
C71 1000PF
CM1 (CN3-1
CM2 (CN3-2
1S1834×4
⑤
E
D
C
B
A
1
2
3
4
5
6
7
8

PARTS LOCATION DIAGRAMS


N5016BC
-20
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F
(GND)
XCPSD20P08000
X2
BUZZER
KBS - 2708
CN9 5342-28G1
CN11 5045-08A
1C 7406
2C LS175
3B 7800/7801
5A LS155
6A LS32
7A LS74
8A LS00
9A 8741/8041
10A 8741/8041
11A L290
12A L291
7B LS04
8B 7405
5C LS155
6C 7406
7C 40H000P
8C LS08
11C L290
12C L291
1D 7406
2D LS273
3D ROM0 2732
4D ROM1 2732
5D ROM2 2732
8D RAM 441C-1
7D RAM 444C-1
8D μPC339
9D L293
1E 7406
2E LS273
3E μPC339
4E μPC339
3F μPC339
4F LS125
X1
X3P+8SX4
PRDAF5011BCZZ
FRC2-C40S13-0L
FRC2-C26S13-0L
YUASA 2/150FT
2.4V 150mAh
VR1
VR2
VR3
Q1
Q2
Q3
D560
NRP-355
A675
SW2
SW3
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN10
CN12
5045-02F
5045-03F
5045-06A
5045-02F-BL
5045-02F-RE
5276-08A
5342-16G1
UPA54H
40PSOCX2
24PSOC X3
(CTAC)
(CST)
(CER)
(WTAC)
(WER)
(WST)
5KVR
ET-6P
EP-6P
SHARP MADE IN JAPAN

1. IC (n pin)



2. Capacitor (⊣⊢)

- Classfication
  - xxxC : Ceramic
  - xxxT : Tantalum electrolytic
  - xxxD : Aluminum foil electrolytic
  - xxxM : Polyester film (± 10%)
  - xxxMJ : Polyester film (± 5%)
- Capacitance (Ex.)
  - 102: 10 x 10^2 (PF)
  - 392: 392 x 10^2 (PF)
  - 227: 22 x 10^7 (PF) = 220μF

3. Resistor (-ww-)

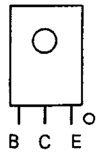
Resistance value (Ex.)

330 → 330Ω

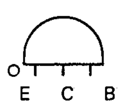
3P3K → 3.3kΩ

4. Transistor

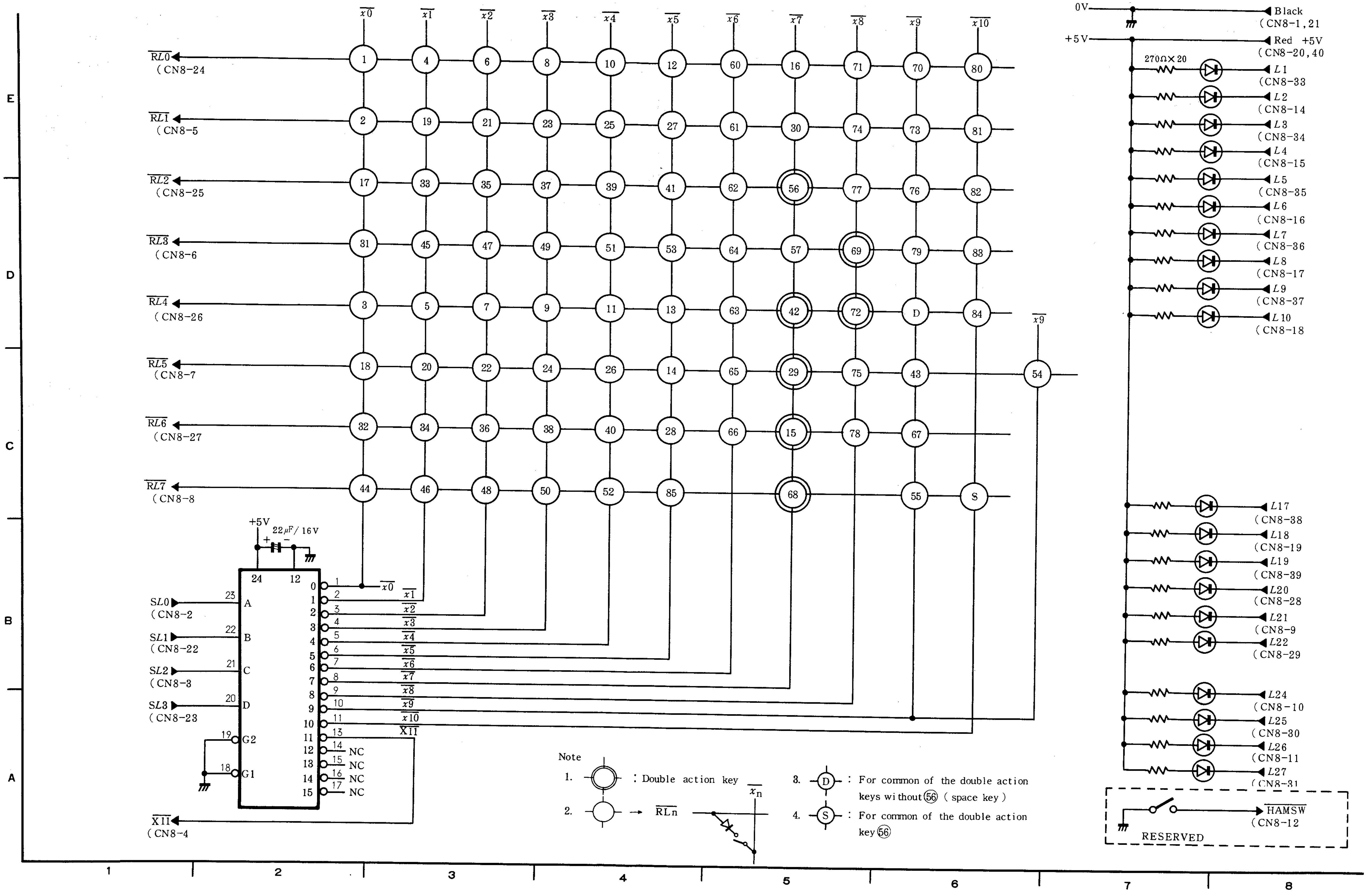
Q1 (2SD560)



Q2, Q3 (2SA675)



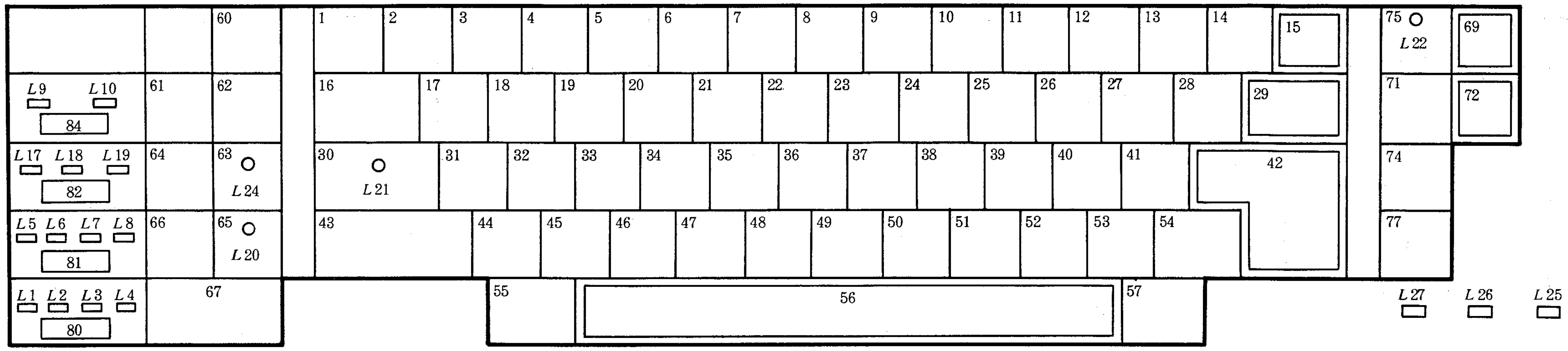
1-2. KEYBOARD


$\overline{x0}$ $\overline{x1}$ $\overline{x2}$ $\overline{x3}$ $\overline{x4}$ $\overline{x5}$ $\overline{x6}$ $\overline{x7}$ $\overline{x8}$ $\overline{x9}$ $\overline{x10}$
$\overline{RL0}$ (CN8-24
$\overline{RL1}$ (CN8-5
$\overline{RL2}$ (CN8-25
$\overline{RL3}$ (CN8-6
$\overline{RL4}$ (CN8-26
$\overline{RL5}$ (CN8-7
$\overline{RL6}$ (CN8-27
$\overline{RL7}$ (CN8-8
1 4 6 8 10 12 60 16 71 70 80
2 19 21 23 25 27 61 30 74 73 81
17 33 35 37 39 41 62 56 77 76 82
31 45 47 49 51 53 64 57 69 79 83
3 5 7 9 11 13 63 42 72 D 84
18 20 22 24 26 14 65 29 75 43 54
32 34 36 38 40 28 66 15 78 67
44 46 48 50 52 85 68 55 S
$\overline{x9}$
+5V
22μF/16V
+ −
24 12
SL0 (CN8-2
SL1 (CN8-22
SL2 (CN8-3
SL3 (CN8-23
23 A
22 B
21 C
20 D
19 G2
18 G1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
1 2 3 4 5 6 7 8 9 10 11 13 14 15 16 17
$\overline{x0}$ $\overline{x1}$ $\overline{x2}$ $\overline{x3}$ $\overline{x4}$ $\overline{x5}$ $\overline{x6}$ $\overline{x7}$ $\overline{x8}$ $\overline{x9}$ $\overline{x10}$ $\overline{X11}$
NC NC NC NC
$\overline{X11}$ (CN8-4
0V
Black (CN8-1,21
+5V
Red +5V (CN8-20,40
270Ω×20
L1 (CN8-33
L2 (CN8-14
L3 (CN8-34
L4 (CN8-15
L5 (CN8-35
L6 (CN8-16
L7 (CN8-36
L8 (CN8-17
L9 (CN8-37
L10 (CN8-18
L17 (CN8-38
L18 (CN8-19
L19 (CN8-39
L20 (CN8-28
L21 (CN8-9
L22 (CN8-29
L24 (CN8-10
L25 (CN8-30
L26 (CN8-11
L27 (CN8-31
HAMSW (CN8-12
RESERVED
Note
1. : Double action key
2. → $\overline{RLn}$ $\overline{x_n}$
3. D : For common of the double action keys without ⑯ (space key)
4. S : For common of the double action key ⑯
E D C B A
1 2 3 4 5 6 7 8

PARTS LOCATION DIAGRAMS

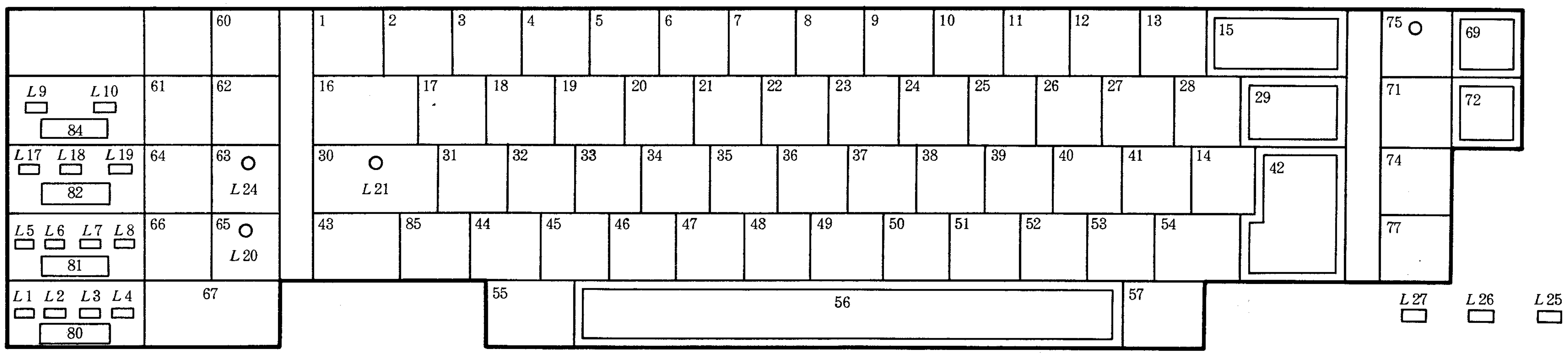
(1) 48Key

ZX400


60
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
75 L22 69
L9 L10 84 61 62
16 17 18 19 20 21 22 23 24 25 26 27 28 29
71 72
L17 L18 L19 82 64 63 L24
30 L21 31 32 33 34 35 36 37 38 39 40 41 42
74
L5 L6 L7 L8 81 66 65 L20
43 44 45 46 47 48 49 50 51 52 53 54
77
L1 L2 L3 L4 80 67
55 56 57
L27 L26 L25

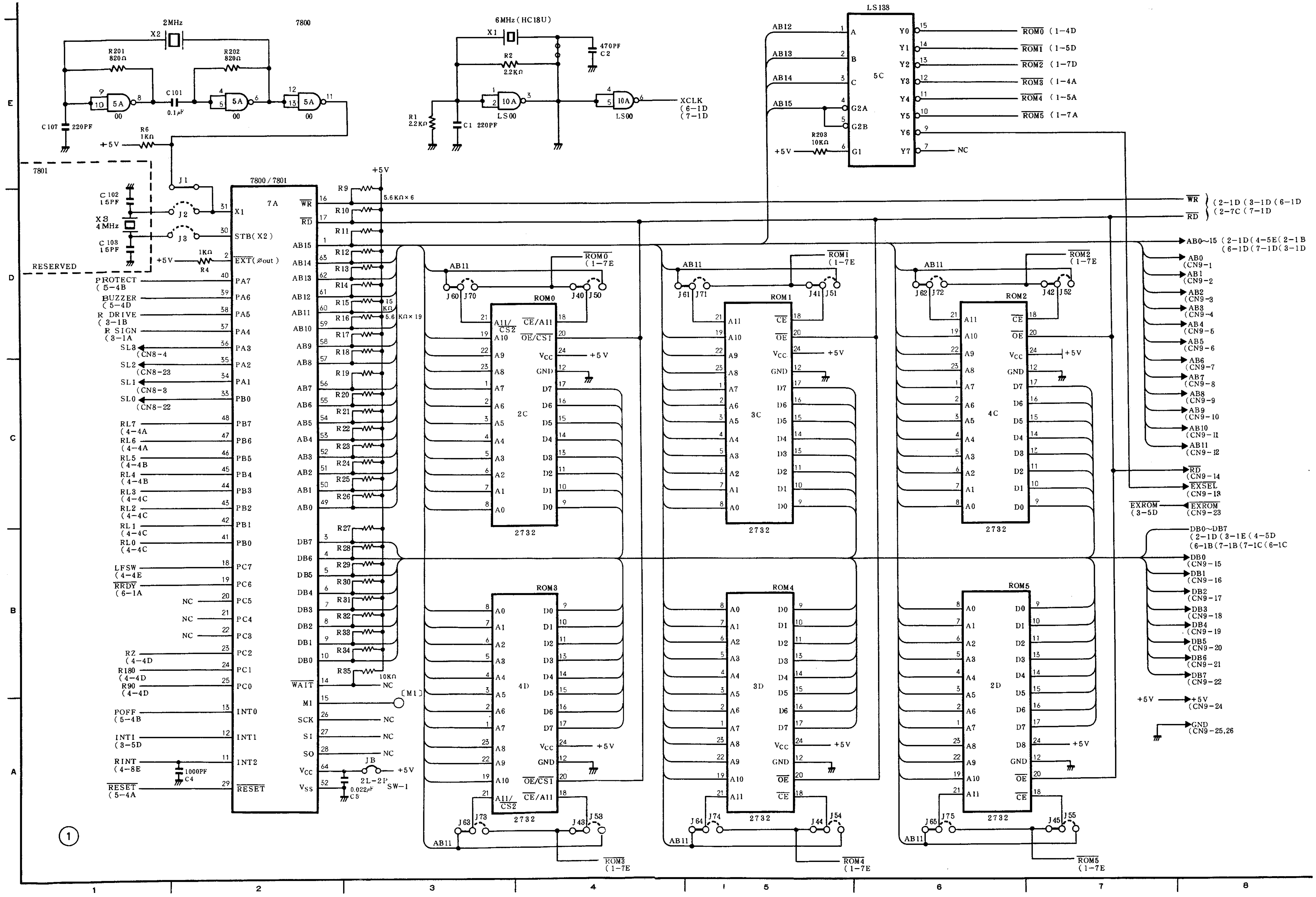
(2) 47Key

ZX400

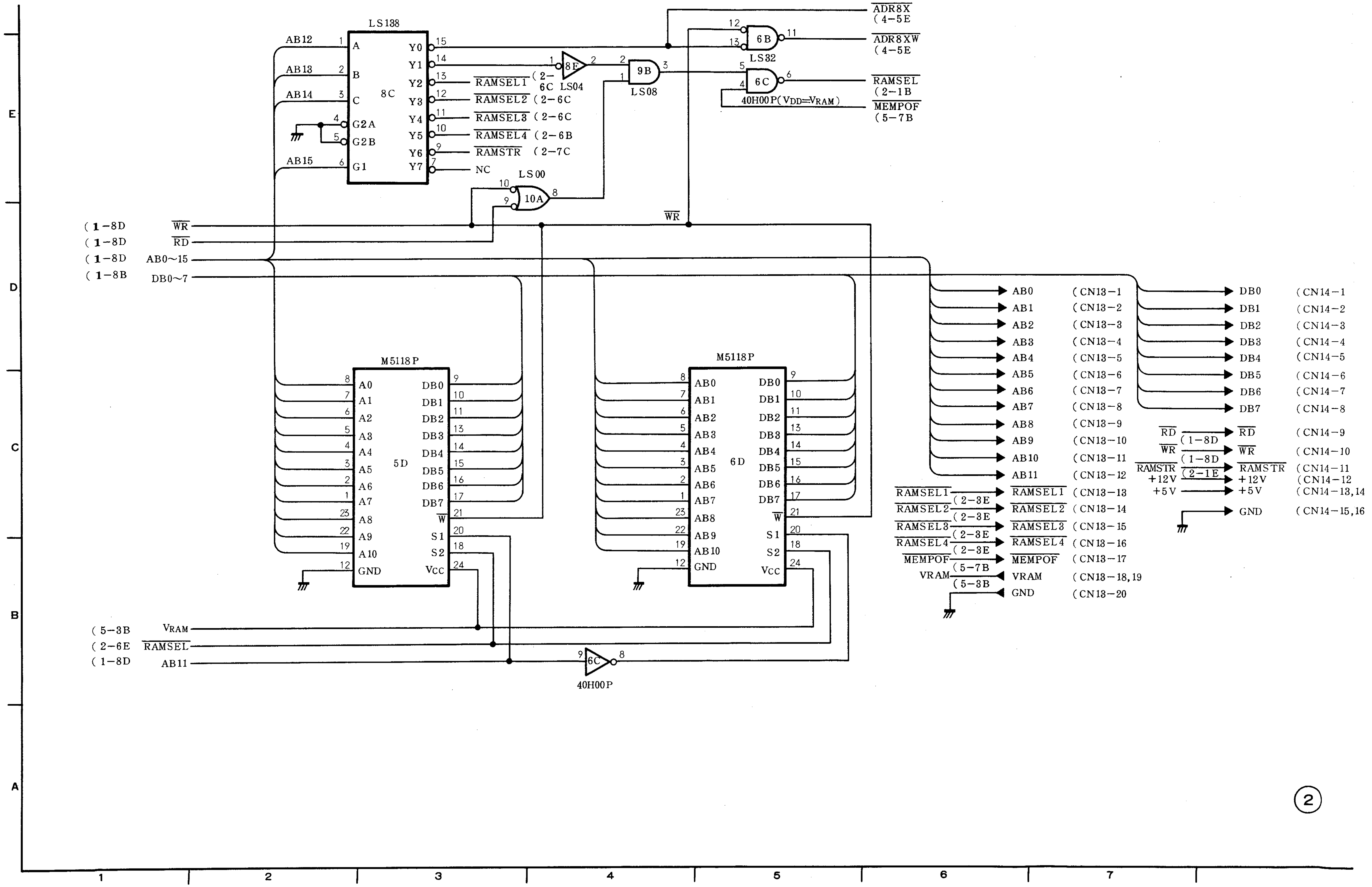

60
1 2 3 4 5 6 7 8 9 10 11 12 13 15
75 69
L9 L10 84 61 62
16 17 18 19 20 21 22 23 24 25 26 27 28 29
71 72
L17 L18 L19 82 64 63 L24
30 L21 31 32 33 34 35 36 37 38 39 40 41 14 42
74
L5 L6 L7 L8 81 66 65 L20
43 85 44 45 46 47 48 49 50 51 52 53 54
77
L1 L2 L3 L4 80 67
55 56 57
L27 L26 L25
E D C B A
1 2 3 4 5 6 7 8

2. ZX-500

2-1. MAIN PWB (CPU/ROM)

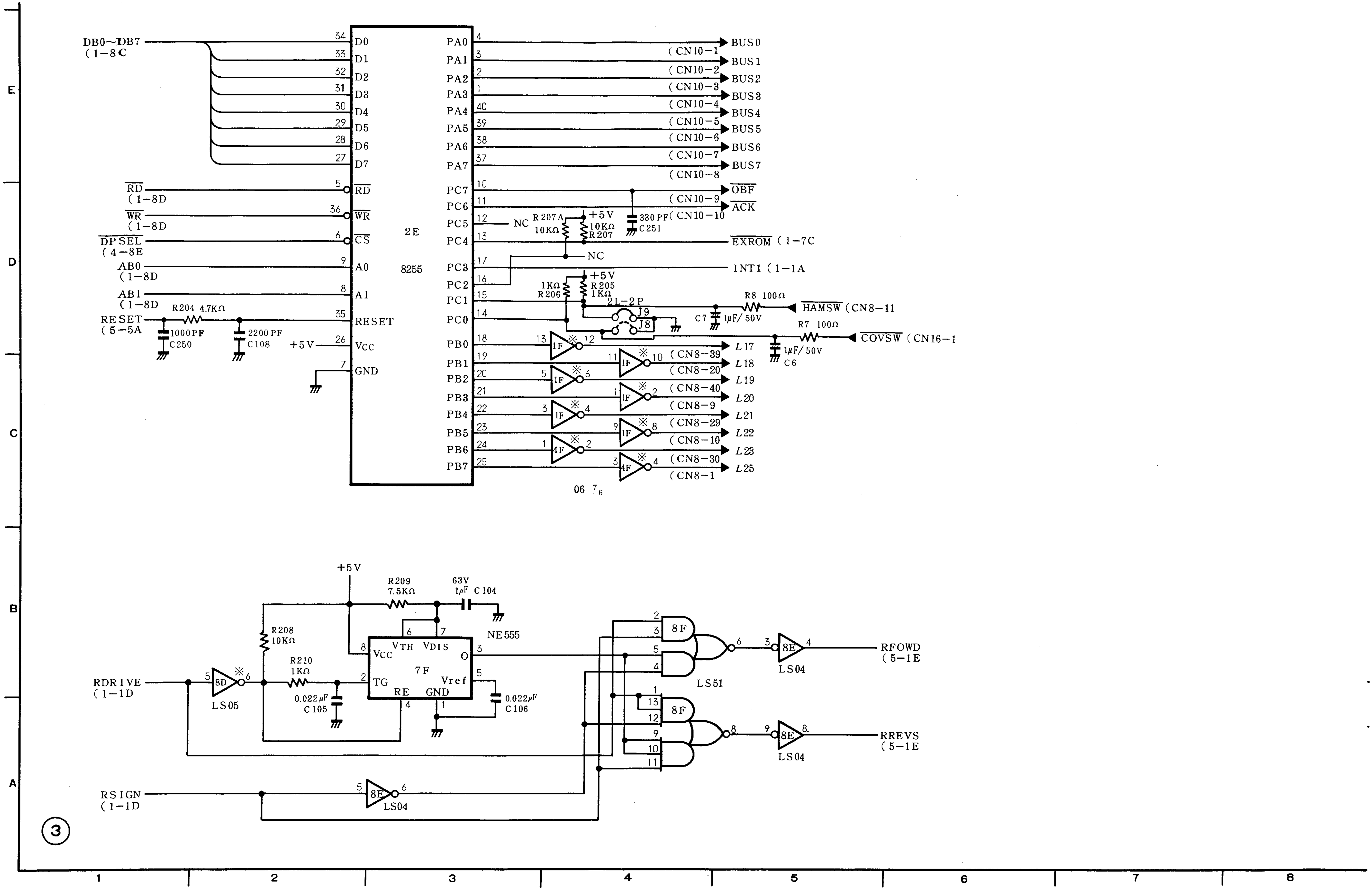

2MHz
X2
7800
R201 820Ω
R202 820Ω
C101 0.1μF
5A
00
C107 220PF
R6 1KΩ
+5V
6MHz (HC18U)
X1
R2 2.2KΩ
470PF C2
R1 2.2KΩ
C1 220PF
10A
LS00
XCLK (6-1D (7-1D
LS138
5C
AB12
AB13
AB14
AB15
R203 10KΩ
ROM0 (1-4D
ROM1 (1-5D
ROM2 (1-7D
ROM3 (1-4A
ROM4 (1-5A
ROM5 (1-7A
NC
7801
RESERVED
C102 15PF
X3 4MHz
C103 15PF
J1
J2
J3
R4 1KΩ
7800/7801
7A
X1
STB(X2)
EXT(φout)
WR
RD
PROTECT (5-4B
BUZZER (5-4D
R DRIVE (3-1B
R SIGN (3-1A
SL3 (CN8-4
SL2 (CN8-23
SL1 (CN8-3
SL0 (CN8-22
RL7 (4-4A
RL6 (4-4A
RL5 (4-4B
RL4 (4-4B
RL3 (4-4C
RL2 (4-4C
RL1 (4-4C
RL0 (4-4C
LFSW (4-4E
RRDY (6-1A
RZ (4-4D
R180 (4-4D
R90 (4-4D
POFF (5-4B
INT1 (3-5D
RINT (4-8E
RESET (5-4A
1000PF C4
WAIT
M1
SCK
SI
SO
VCC
VSS
JB
2L-2P
SW-1
0.022μF C5
R9–R35
5.6KΩ×6
5.6KΩ×19
15KΩ
10KΩ
(M1)
ROM0 2C 2732
ROM1 3C 2732
ROM2 4C 2732
ROM3 4D 2732
ROM4 3D 2732
ROM5 2D 2732
AB11
J60 J70 J40 J50
J61 J71 J41 J51
J62 J72 J42 J52
J63 J73 J43 J53
J64 J74 J44 J54
J65 J75 J45 J55
WR (2-1D (3-1D (6-1D
RD (2-7C (7-1D
AB0~15 (2-1D (4-5E (2-1B (6-1D (7-1D (3-1D
AB0 (CN9-1
AB1 (CN9-2
AB2 (CN9-3
AB3 (CN9-4
AB4 (CN9-5
AB5 (CN9-6
AB6 (CN9-7
AB7 (CN9-8
AB8 (CN9-9
AB9 (CN9-10
AB10 (CN9-11
AB11 (CN9-12
RD (CN9-14
EXSEL (CN9-13
EXROM (3-5D
EXROM (CN9-23
DB0~DB7 (2-1D (3-1E (4-5D (6-1B (7-1B (7-1C (6-1C
DB0 (CN9-15
DB1 (CN9-16
DB2 (CN9-17
DB3 (CN9-18
DB4 (CN9-19
DB5 (CN9-20
DB6 (CN9-21
DB7 (CN9-22
+5V (CN9-24
GND (CN9-25,26
①
A B C D E
1 2 3 4 5 6 7 8

(MEMORIES)

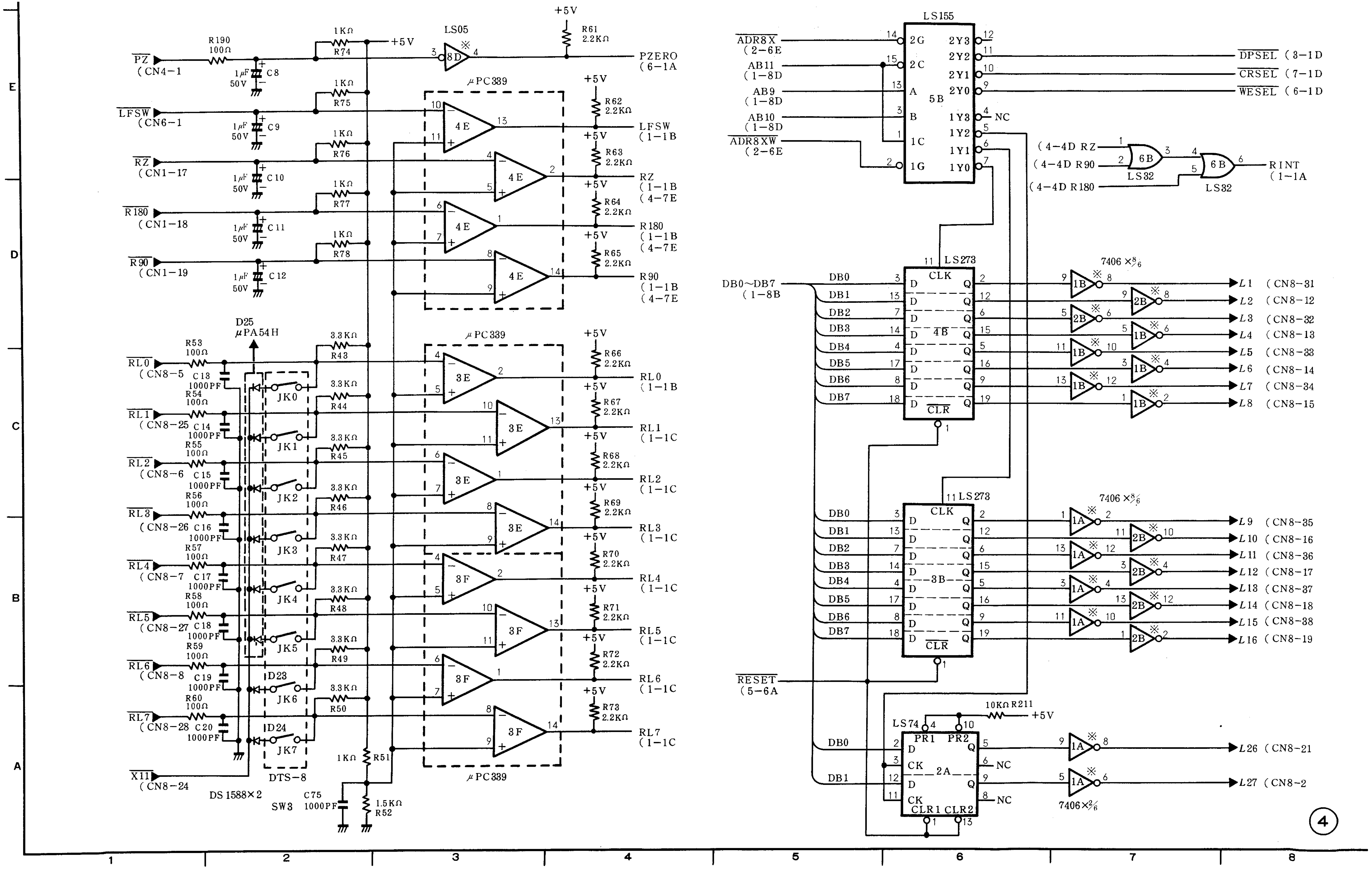

LS138
8C
AB12
AB13
AB14
AB15
A
B
C
G2A
G2B
G1
Y0
Y1
Y2
Y3
Y4
Y5
Y6
Y7
RAMSEL1 (2-6C
RAMSEL2 (2-6C
RAMSEL3 (2-6C
RAMSEL4 (2-6B
RAMSTR (2-7C
NC
8E
LS04
9B
LS08
6B
LS32
6C
40H00P(VDD=VRAM)
ADR8X (4-5E
ADR8XW (4-5E
RAMSEL (2-1B
MEMPOF (5-7B
LS00
10A
WR
(1-8D WR
(1-8D RD
(1-8D AB0~15
(1-8B DB0~7
M5118P
5D
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
GND
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
W
S1
S2
VCC
M5118P
6D
AB0
AB1
AB2
AB3
AB4
AB5
AB6
AB7
AB8
AB9
AB10
GND
AB0 (CN13-1
AB1 (CN13-2
AB2 (CN13-3
AB3 (CN13-4
AB4 (CN13-5
AB5 (CN13-6
AB6 (CN13-7
AB7 (CN13-8
AB8 (CN13-9
AB9 (CN13-10
AB10 (CN13-11
AB11 (CN13-12
RAMSEL1 (2-3E RAMSEL1 (CN13-13
RAMSEL2 (2-3E RAMSEL2 (CN13-14
RAMSEL3 (2-3E RAMSEL3 (CN13-15
RAMSEL4 (2-3E RAMSEL4 (CN13-16
MEMPOF (5-7B MEMPOF (CN13-17
VRAM (5-3B VRAM (CN13-18, 19
GND (CN13-20
DB0 (CN14-1
DB1 (CN14-2
DB2 (CN14-3
DB3 (CN14-4
DB4 (CN14-5
DB5 (CN14-6
DB6 (CN14-7
DB7 (CN14-8
RD (1-8D RD (CN14-9
WR (1-8D WR (CN14-10
RAMSTR (2-1E RAMSTR (CN14-11
+12V +12V (CN14-12
+5V +5V (CN14-13, 14
GND (CN14-15, 16
(5-3B VRAM
(2-6E RAMSEL
(1-8D AB11
6C
40H00P
E
D
C
B
A
1
2
3
4
5
6
7

②

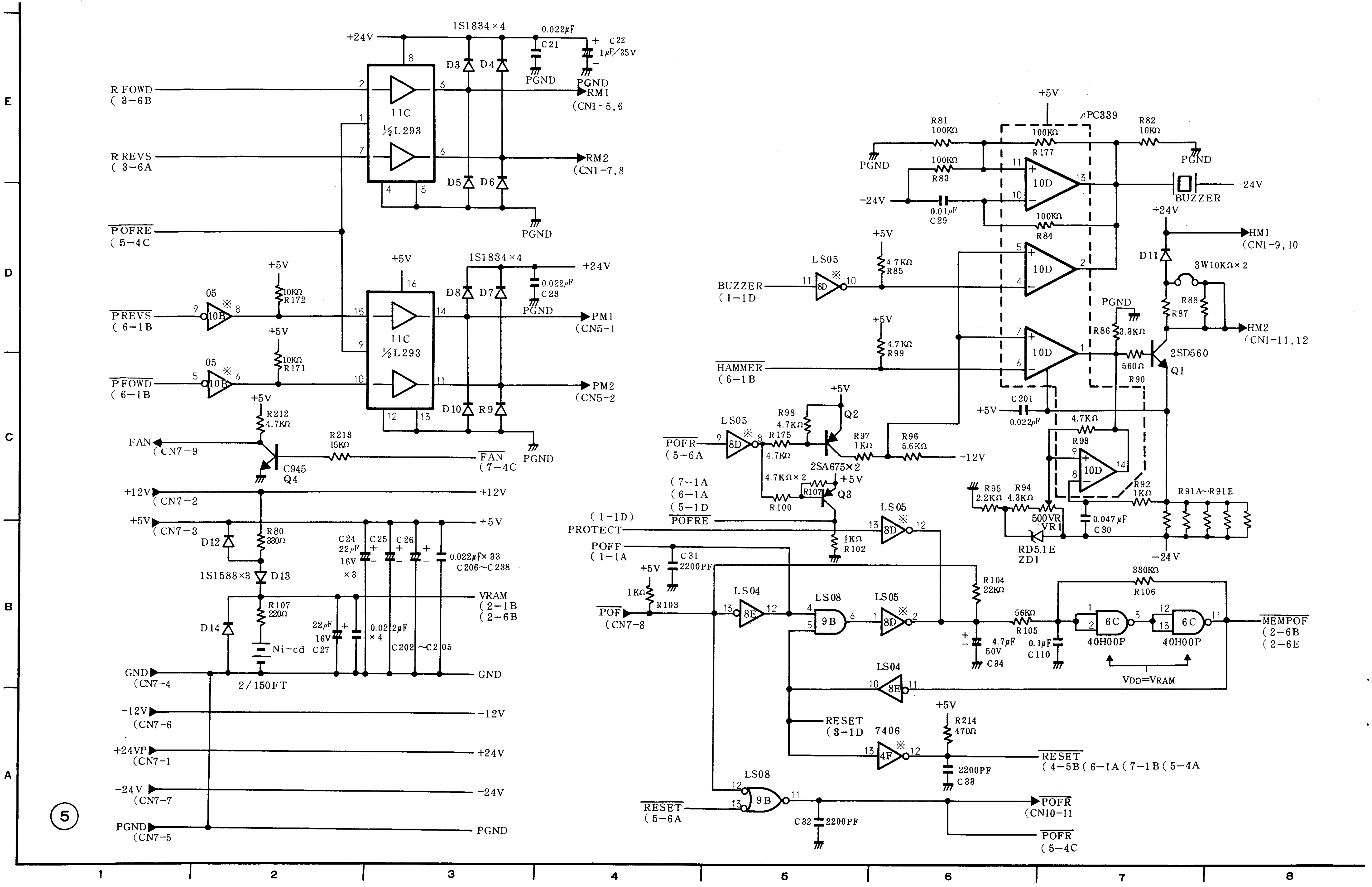
(DISPLAY I/F)


DB0~DB7 (1-8C
34 D0
33 D1
32 D2
31 D3
30 D4
29 D5
28 D6
27 D7
RD (1-8D
5 RD
WR (1-8D
36 WR
DPSEL (4-8E
6 CS
AB0 (1-8D
9 A0
AB1 (1-8D
8 A1
RESET (5-5A
R204 4.7KΩ
1000PF C250
2200 PF C108
35 RESET
+5V 26 Vcc
7 GND
2E
8255
PA0 4 BUS0
PA1 3 (CN10-1 BUS1
PA2 2 (CN10-2 BUS2
PA3 1 (CN10-3 BUS3
PA4 40 (CN10-4 BUS4
PA5 39 (CN10-5 BUS5
PA6 38 (CN10-6 BUS6
PA7 37 (CN10-7 BUS7
(CN10-8
PC7 10 OBF
PC6 11 (CN10-9 ACK
PC5 12 NC
R207A 10KΩ
+5V
10KΩ R207
330PF C251
(CN10-10
PC4 13 EXROM (1-7C
NC
PC3 17 INT1 (1-1A
PC2 16
+5V
1KΩ R206
R205 1KΩ
PC1 15
2L-2P
J9
J8
R8 100Ω
HAMSW (CN8-11
C7 1μF/50V
PC0 14
R7 100Ω
COVSW (CN16-1
1μF/50V C6
PB0 18 13 1F ※ 12 L17
PB1 19 11 1F ※ 10 (CN8-39 L18
PB2 20 5 1F ※ 6 (CN8-20 L19
PB3 21 1 1F ※ 2 (CN8-40 L20
PB4 22 3 1F ※ 4 (CN8-9 L21
PB5 23 9 1F ※ 8 (CN8-29 L22
PB6 24 1 4F ※ 2 (CN8-10 L23
PB7 25 3 4F ※ 4 (CN8-30 L25
(CN8-1
06 7 6
+5V
R209 7.5KΩ
63V 1μF C104
R208 10KΩ
R210 1KΩ
0.022μF C105
8 Vcc
6 VTH
7 VDIS
7F
NE555
3 O
2 TG
Vref 5
RE 4
GND 1
0.022μF C106
RDRIVE (1-1D
5 8D ※ 6
LS05
2 3 8F
5 4
6
LS51
3 8E 4
LS04
RFOWD (5-1E
1 13 12 8F
9 10 11
8
9 8E 8
LS04
RREVS (5-1E
RSIGN (1-1D
5 8E 6
LS04
③
E
D
C
B
A
1
2
3
4
5
6
7
8

(KEY SW LED I/F)

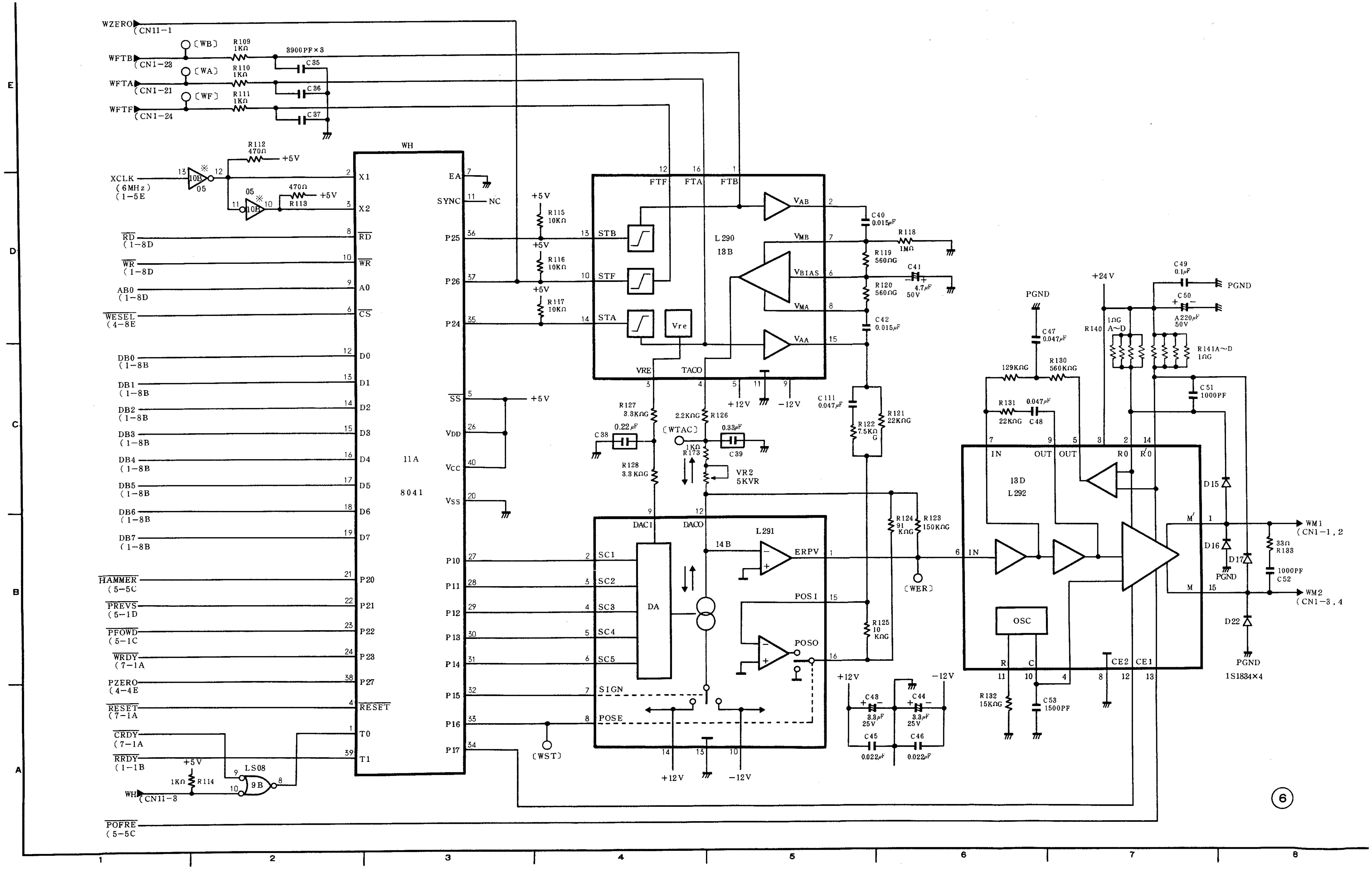

E
D
C
B
A
1
2
3
4
5
6
7
8
PZ (CN4-1
R190 100Ω
1μF 50V C8
LFSW (CN6-1
1μF 50V C9
RZ (CN1-17
1μF 50V C10
R180 (CN1-18
1μF 50V C11
R90 (CN1-19
1μF 50V C12
1KΩ R74
1KΩ R75
1KΩ R76
1KΩ R77
1KΩ R78
+5V
LS05
8D ※
+5V
R61 2.2KΩ
PZERO (6-1A
μPC339
4E
+5V R62 2.2KΩ
LFSW (1-1B
+5V R63 2.2KΩ
RZ (1-1B (4-7E
+5V R64 2.2KΩ
R180 (1-1B (4-7E
+5V R65 2.2KΩ
R90 (1-1B (4-7E
D25 μPA54H
RL0 (CN8-5
R53 100Ω
C13 1000PF
RL1 (CN8-25
R54 100Ω
C14 1000PF
RL2 (CN8-6
R55 100Ω
C15 1000PF
RL3 (CN8-26
R56 100Ω
C16 1000PF
RL4 (CN8-7
R57 100Ω
C17 1000PF
RL5 (CN8-27
R58 100Ω
C18 1000PF
RL6 (CN8-8
R59 100Ω
C19 1000PF
RL7 (CN8-28
R60 100Ω
C20 1000PF
X11 (CN8-24
JK0
JK1
JK2
JK3
JK4
JK5
D23 JK6
D24 JK7
DTS-8
DS 1588×2
SW3
3.3KΩ R43
3.3KΩ R44
3.3KΩ R45
3.3KΩ R46
3.3KΩ R47
3.3KΩ R48
3.3KΩ R49
3.3KΩ R50
1KΩ R51
1.5KΩ R52
C75 1000PF
μPC339
3E
3F
μPC339
+5V R66 2.2KΩ
RL0 (1-1B
+5V R67 2.2KΩ
RL1 (1-1C
+5V R68 2.2KΩ
RL2 (1-1C
+5V R69 2.2KΩ
RL3 (1-1C
+5V R70 2.2KΩ
RL4 (1-1C
+5V R71 2.2KΩ
RL5 (1-1C
+5V R72 2.2KΩ
RL6 (1-1C
+5V R73 2.2KΩ
RL7 (1-1C
LS155
5B
ADR8X (2-6E
AB11 (1-8D
AB9 (1-8D
AB10 (1-8D
ADR8XW (2-6E
2G 2C A B 1C 1G
2Y3 2Y2 2Y1 2Y0 1Y3 1Y2 1Y1 1Y0
NC
DPSEL (3-1D
CRSEL (7-1D
WESEL (6-1D
(4-4D RZ
(4-4D R90
(4-4D R180
6B LS32
6B LS32
RINT (1-1A
DB0~DB7 (1-8B
LS273
4B
CLK D Q CLR
DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7
7406 ×8/6
1B 2B
L1 (CN8-31
L2 (CN8-12
L3 (CN8-32
L4 (CN8-13
L5 (CN8-33
L6 (CN8-14
L7 (CN8-34
L8 (CN8-15
LS273
3B
7406 ×8/6
1A 2B
L9 (CN8-35
L10 (CN8-16
L11 (CN8-36
L12 (CN8-17
L13 (CN8-37
L14 (CN8-18
L15 (CN8-38
L16 (CN8-19
RESET (5-6A
LS74
2A
PR1 PR2 D CK CLR1 CLR2 Q
10KΩ R211 +5V
NC
NC
1A
7406×2/6
L26 (CN8-21
L27 (CN8-2
④

(MOTOR HAMMER DRIVE)

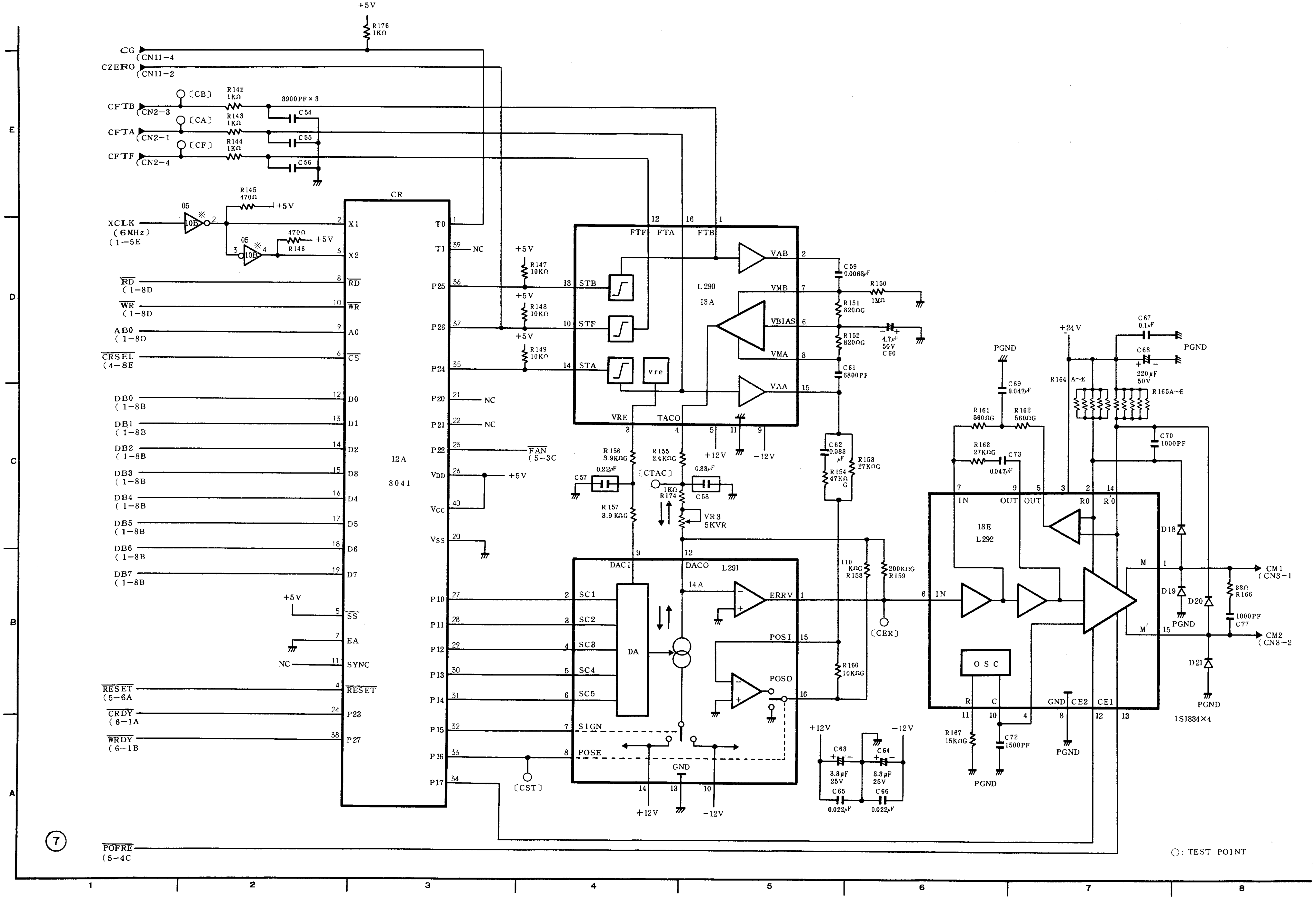


E
D
C
B
A
1
2
3
4
5
6
7
8
⑤
+24V
1S1834×4
0.022μF
C21
C22
1μF/35V
PGND
D3
D4
D5
D6
R FOWD
(3-6B
R REVS
(3-6A
11C
½L293
RM1
(CN1-5,6
RM2
(CN1-7,8
POFRE
(5-4C
+5V
1S1834×4
+24V
0.022μF
C23
D8
D7
D10
R9
05
10B
10KΩ
R172
R171
PREVS
(6-1B
PFOWD
(6-1B
PM1
(CN5-1
PM2
(CN5-2
R212
4.7KΩ
FAN
(CN7-9
R213
15KΩ
C945
Q4
FAN
(7-4C
+12V
(CN7-2
+5V
(CN7-3
D12
R80
330Ω
1S1588×3
D13
C24
22μF
16V
×3
C25
C26
0.022μF×33
C206~C238
VRAM
(2-1B
(2-6B
R107
220Ω
D14
22μF
16V
C27
0.02 2μF
×4
C202~C205
Ni-cd
2/150FT
GND
(CN7-4
-12V
(CN7-6
+24VP
(CN7-1
-24V
(CN7-7
PGND
(CN7-5
+5V
μPC339
R81
100KΩ
100KΩ
R177
R82
10KΩ
R83
10D
-24V
0.01μF
C29
BUZZER
100KΩ
R84
HM1
(CN1-9,10
LS05
8D
4.7KΩ
R85
BUZZER
(1-1D
D11
3W10KΩ×2
R88
R87
R86
3.3KΩ
HM2
(CN1-11,12
4.7KΩ
R99
HAMMER
(6-1B
560Ω
R90
2SD560
Q1
C201
0.022μF
R98
4.7KΩ
Q2
R175
R97
1KΩ
R96
5.6KΩ
-12V
POFR
(5-6A
2SA675×2
4.7KΩ×2
R107
Q3
R100
R93
4.7KΩ
R95
2.2KΩ
R94
4.3KΩ
500VR
VR1
R92
1KΩ
R91A~R91E
0.047μF
C30
RD5.1E
ZD1
(7-1A
(6-1A
(5-1D
POFRE
(1-1D)
PROTECT
1KΩ
R102
POFF
(1-1A
C31
2200PF
R104
22KΩ
R103
POF
(CN7-8
LS04
8E
LS08
9B
4.7μF
50V
C34
56KΩ
R105
0.1μF
C110
330KΩ
R106
6C
40H00P
VDD=VRAM
MEMPOF
(2-6B
(2-6E
RESET
(3-1D
7406
4F
R214
470Ω
2200PF
C33
RESET
(4-5B (6-1A (7-1B (5-4A
RESET
(5-6A
C32
2200PF
POFR
(CN10-11
POFR
(5-4C

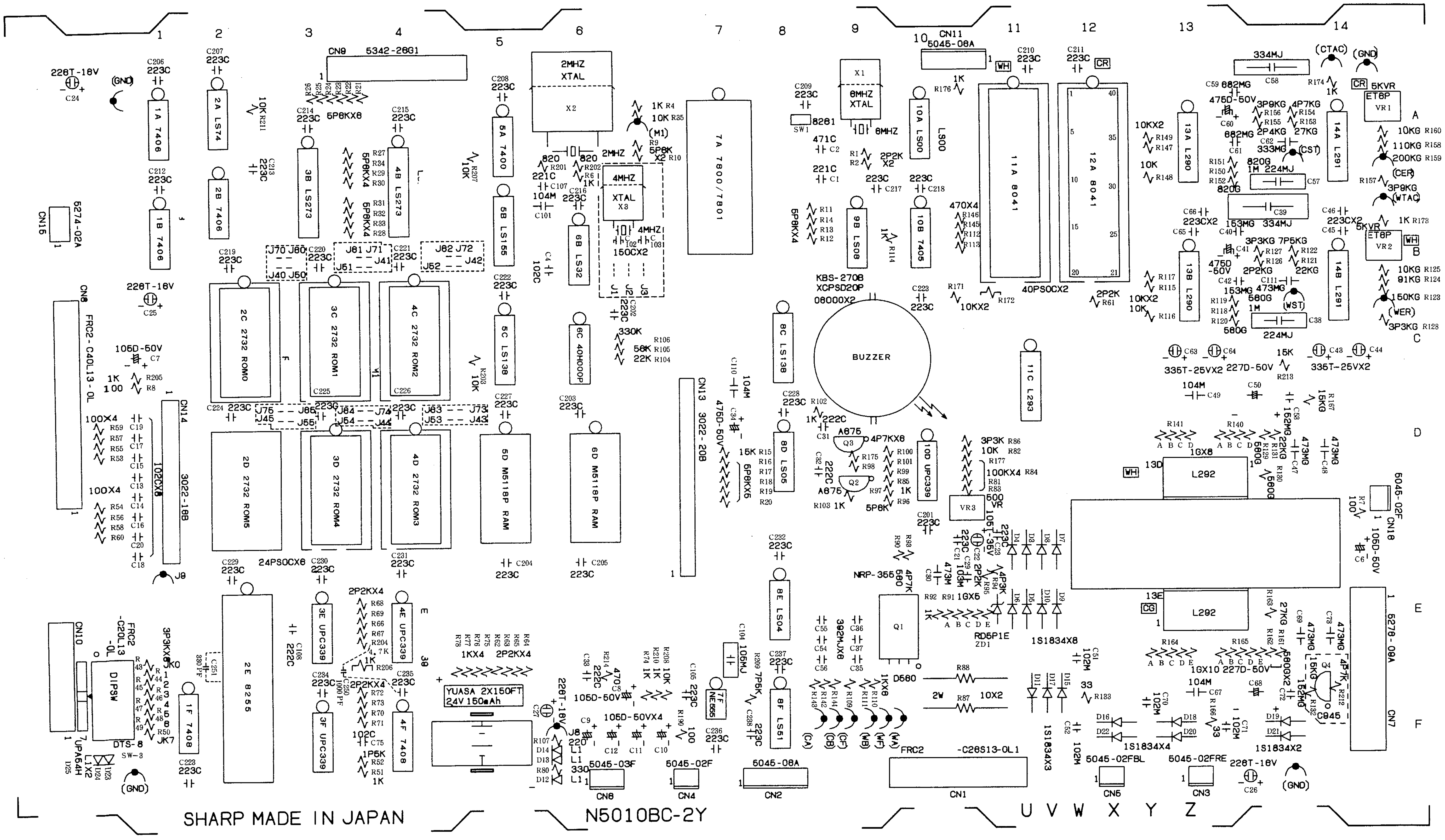
(WHEEL SERVO)


WZERO
(CN11-1
WFTB
(CN1-23
WFTA
(CN1-21
WFTF
(CN1-24
(WB)
(WA)
(WF)
R109 1KΩ
R110 1KΩ
R111 1KΩ
3900PF×3
C35
C36
C37
R112 470Ω
+5V
XCLK
(6MHz)
(1-5E
10H
05
470Ω
R113
WH
X1
X2
EA
SYNC
NC
RD
(1-8D
WR
(1-8D
AB0
(1-8D
A0
WESEL
(4-8E
CS
DB0
(1-8B
DB1
DB2
DB3
DB4
DB5
DB6
DB7
D0
D1
D2
D3
D4
D5
D6
D7
11A
8041
P25
P26
P24
SS
VDD
Vcc
Vss
HAMMER
(5-5C
PREVS
(5-1D
PFOWD
(5-1C
WRDY
(7-1A
PZERO
(4-4E
RESET
(7-1A
CRDY
(7-1A
RRDY
(1-1B
P20
P21
P22
P23
P27
T0
T1
LS08
9B
1KΩ R114
WH
(CN11-3
POFRE
(5-5C
P10
P11
P12
P13
P14
P15
P16
P17
(WST)
R115 10KΩ
R116 10KΩ
R117 10KΩ
STB
STF
STA
Vre
FTF
FTA
FTB
L290
13B
VAB
VMB
VBIAS
VMA
VAA
VRE
TACO
+12V
-12V
C40 0.015μF
R118 1MΩ
R119 560ΩG
C41 4.7μF 50V
R120 560ΩG
C42 0.015μF
C111 0.047μF
R121 22KΩG
R122 7.5KΩ G
R127 3.3KΩG
C38
0.22μF
R128 3.3KΩG
2.2KΩG R126
(WTAC)
0.33μF
C39
1KΩ R173
VR2 5KVR
DAC1
DACO
L291
14B
SC1
SC2
SC3
SC4
SC5
DA
SIGN
POSE
ERPV
POSI
POSO
R124 91 KΩG
R123 150KΩG
(WER)
R125 10 KΩG
C43 3.3μF 25V
C44 3.3μF 25V
C45 0.022μF
C46 0.022μF
PGND
C47 0.047μF
129KΩG
R130 560KΩG
R131 22KΩG
0.047μF C48
+24V
R140
1ΩG A~D
R141A~D 1ΩG
C49 0.1μF
C50
A220μF 50V
C51 1000PF
13D
L292
IN
OUT
RO
R'O
M'
M
OSC
R
C
CE2
CE1
R132 15KΩG
C53 1500PF
D15
D16
D17
D22
33Ω R133
1000PF C52
WM1
(CN1-1, 2
WM2
(CN1-3, 4
1S1834×4
⑥
A
B
C
D
E
1
2
3
4
5
6
7
8

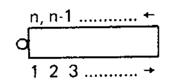
(CARRIAGE SERVO)


+5V
R176 1KΩ
CG (CN11-4
CZERO (CN11-2
〔CB〕
R142 1KΩ
3900PF×3
CFTB (CN2-3
C54
〔CA〕
R143 1KΩ
CFTA (CN2-1
C55
〔CF〕
R144 1KΩ
CFTF (CN2-4
C56
R145 470Ω
+5V
05
10B
XCLK (6MHz) (1-5E
470Ω
R146
CR
X1
X2
T0
T1
NC
RD (1-8D
WR (1-8D
AB0 (1-8D
A0
CRSEL (4-8E
CS
P25
P26
P24
P20
P21
P22
FAN (5-3C
DB0 (1-8B
DB1 (1-8B
DB2 (1-8B
DB3 (1-8B
DB4 (1-8B
DB5 (1-8B
DB6 (1-8B
DB7 (1-8B
D0
D1
D2
D3
D4
D5
D6
D7
12A
8041
VDD
Vcc
Vss
SS
EA
SYNC
RESET (5-6A
CRDY (6-1A
P23
WRDY (6-1B
P27
P10
P11
P12
P13
P14
P15
P16
P17
〔CST〕
R147 10KΩ
R148 10KΩ
R149 10KΩ
STB
STF
STA
vre
FTF
FTA
FTB
L290
13A
VAB
VMB
VBIAS
VMA
VAA
VRE
TACO
C59 0.0068μF
R150 1MΩ
R151 820ΩG
R152 820ΩG
4.7μF 50V C60
C61 6800PF
R156 3.9KΩG
R155 2.4KΩG
+12V
-12V
C57
0.22μF
〔CTAC〕
0.33μF
C58
1KΩ R174
R157 3.9KΩG
VR3 5KVR
C62 0.033μF
R154 47KΩG
R153 27KΩG
L291
DACI
DACO
14A
SC1
SC2
SC3
SC4
SC5
DA
SIGN
POSE
ERRV
POSI
POSO
GND
110KΩG R158
200KΩG R159
〔CER〕
R160 10KΩG
+12V
-12V
C63 3.3μF 25V
C64 3.3μF 25V
C65 0.022μF
C66 0.022μF
+24V
C67 0.1μF
C68 220μF 50V
PGND
C69 0.047μF
R161 560ΩG
R162 560ΩG
R163 27KΩG
C73 0.047μF
R164 A~E
R165A~E
C70 1000PF
IN
OUT
R0
R'0
13E
L292
OSC
R
C
GND
CE2
CE1
R167 15KΩG
C72 1500PF
M
M'
D18
D19
D20
D21
33Ω R166
1000PF C77
CM1 (CN3-1
CM2 (CN3-2
1S1834×4
POFRE (5-4C
⑦
○: TEST POINT
E
D
C
B
A
1
2
3
4
5
6
7
8

PARTS LOCATION DIAGRAMS


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
CN9 5342-26G1
CN11 5045-08A
CN16 5274-02A
CN6 FRC2-C40L13-0L
CN14 3022-18B
CN13 3022-20B
CN10 FRC2-C20L13-0L
CN18 5045-02F
CN7 5276-08A
1A 7406
1B 7406
2A LS74
2B 7406
3B LS273
4B LS273
5A 7400
5B LS155
5C LS138
6B LS32
6C 40H000P
7A 7800/7801
8C LS138
8D LS05
8E LS04
8F LS61
9B LS08
10A LS00
10B 7405
10D UPC339
11A 8041
12A 8041
11C L293
13A L290
13B L290
14A L291
14B L291
2C 2732 ROM0
3C 2732 ROM1
4C 2732 ROM2
2D 2732 ROM5
3D 2732 ROM4
4D 2732 ROM3
5D M5118P RAM
6D M5118P RAM
2E 8255
3E UPC339
4E UPC339
3F UPC339
1F 7408
4F 7408
2MHZ XTAL X2
4MHZ XTAL X3
6MHZ XTAL X1
BUZZER
KBS-2708 XCPSD20P 06000X2
40PS0CX2
24PS0CX6
DIPSW DTS-8 SW-3
YUASA 2X150FT 24V 150mAh
Q1
Q2
Q3
A675
D560
RD5P1E ZD1
NRP-355
VR1
VR2
VR3
5KVR
ET6P
L292
13D
13E
1S1834X8
1S1834X4
1S1834X2
1S1834X3
(GND)
(CTAC)
(CST)
(CER)
(WTAC)
(WST)
(WER)
(CA)
(CB)
(CF)
(WB)
(WF)
(WA)
FRC2 -C26S13-0L1
CN1
CN2 5045-08A
CN3 5045-02FRE
CN4 5045-02F
CN5 5045-02FBL
CN8 5045-03F
SHARP MADE IN JAPAN
N5010BC-2Y
U V W X Y Z

1. IC (n-pin)



2. Capacitor (—||—)

- Classfication
  - xxxC : Ceramic
  - xxxT : Tantalum electrolytic
  - xxxD : Aluminum foil electrolytic
  - xxxM : Polyester film (± 10%)
  - xxxMJ : Polyester film (± 5%)
- Capacitance (Ex.)
  - 102: 10 x 10² (PF)
  - 392: 392 x 10² (PF)
  - 227: 22 x 10⁷ (PF) = 220μF

3. Resistor (-\/\/\/-)

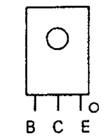
Resistance value (Ex.)

330 → 330Ω

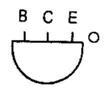
3P3K → 3.3kΩ

4. Transistor

Q1 (2SD560)

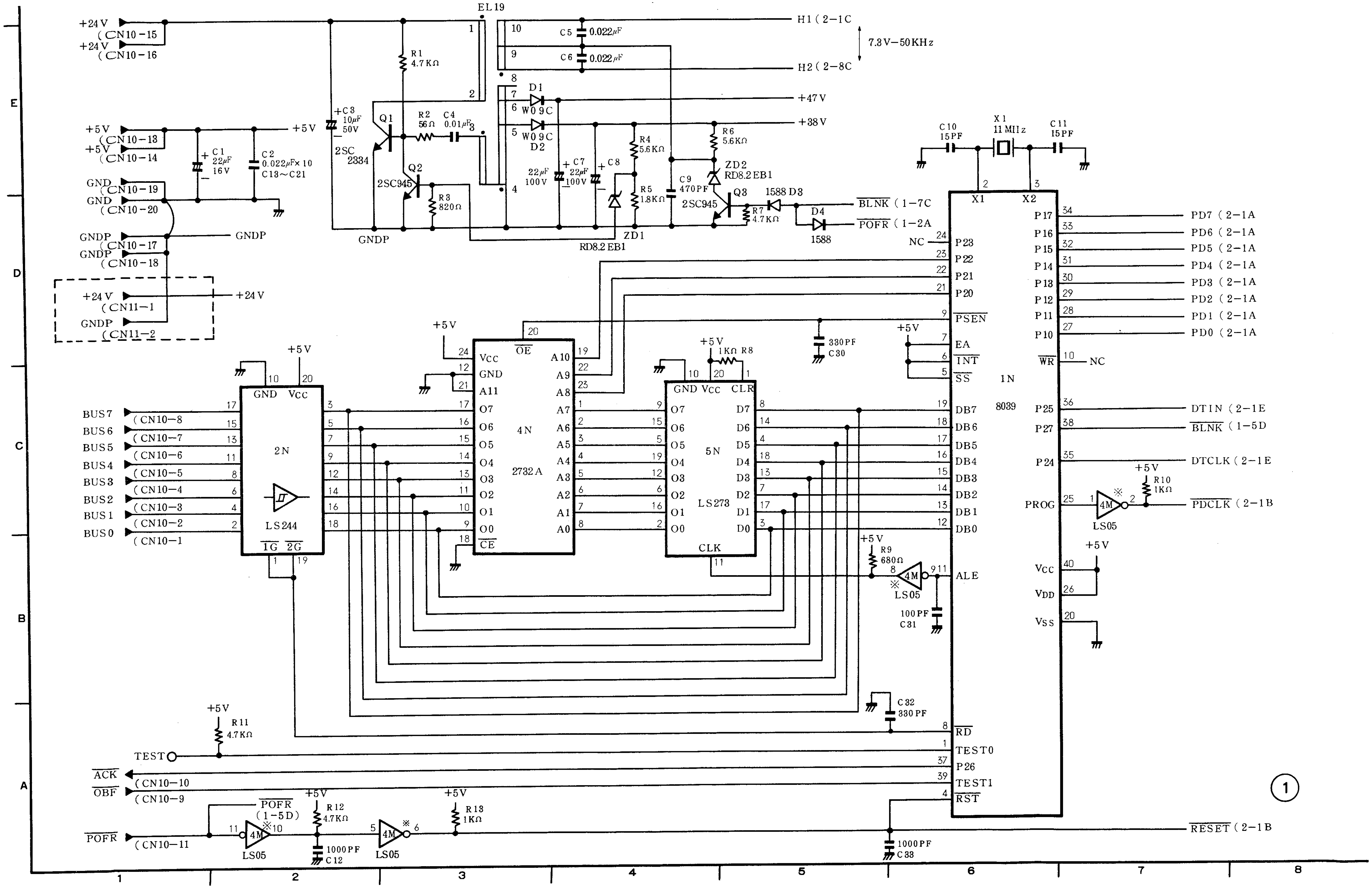


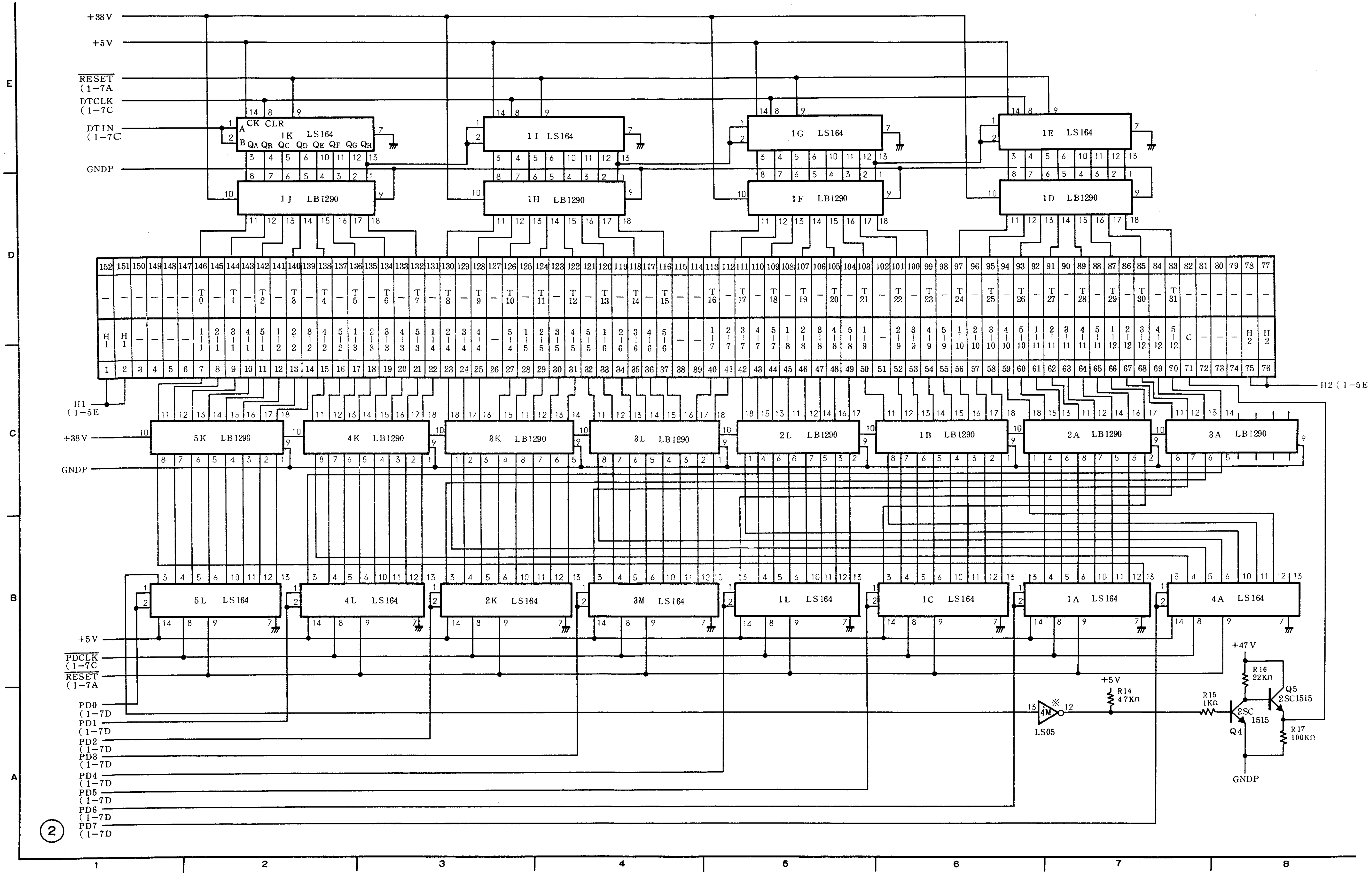
Q2, Q3 (2SA675)



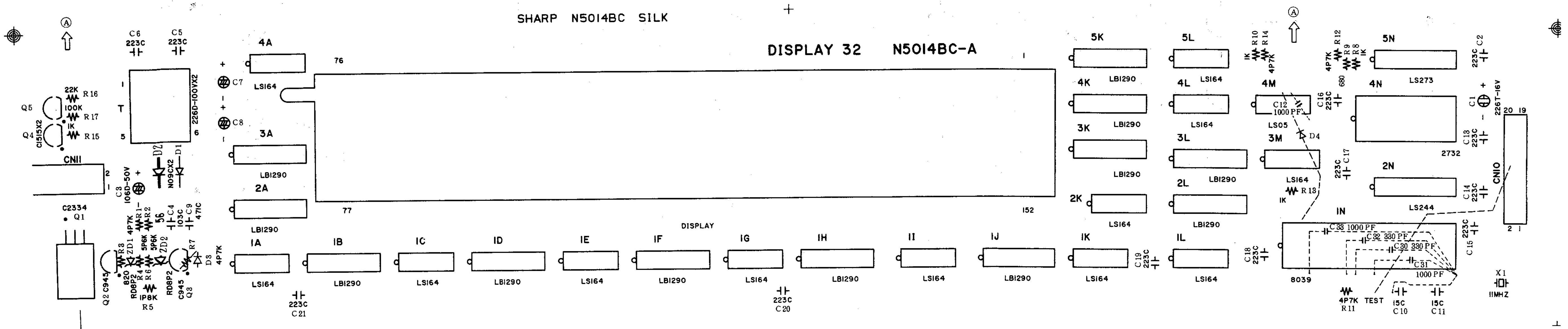
— MEMO —

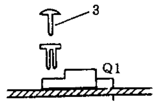
2-2. DISPLAY PWB

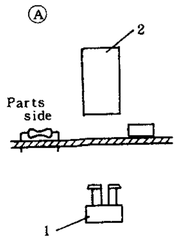

+24V (CN10-15
+24V (CN10-16
+5V (CN10-13
+5V (CN10-14
GND (CN10-19
GND (CN10-20
GNDP (CN10-17
GNDP (CN10-18
GNDP
+24V (CN11-1
GNDP (CN11-2
+24V
+5V
C1 22μF 16V
C2 0.022μF×10 C13~C21
EL19
R1 4.7KΩ
+C3 10μF 50V
Q1 2SC 2334
R2 56Ω
C4 0.01μF
Q2 2SC945
R3 820Ω
GNDP
C5 0.022μF
C6 0.022μF
H1 (2-1C
H2 (2-8C
7.3V-50KHz
D1 W09C
D2 W09C
+47V
+38V
22μF 100V
C7 22μF 100V
C8
R4 5.6KΩ
R5 1.8KΩ
ZD1 RD8.2EB1
C9 470PF
R6 5.6KΩ
ZD2 RD8.2EB1
Q3 2SC945
R7 4.7KΩ
1588 D3
D4 1588
BLNK (1-7C
POFR (1-2A
C10 15PF
X1 11MHz
C11 15PF
X1
X2
NC
P23
P22
P21
P20
PSEN
EA
INT
SS
1N
8039
WR
NC
P17
P16
P15
P14
P13
P12
P11
P10
PD7 (2-1A
PD6 (2-1A
PD5 (2-1A
PD4 (2-1A
PD3 (2-1A
PD2 (2-1A
PD1 (2-1A
PD0 (2-1A
330PF C30
BUS7 (CN10-8
BUS6 (CN10-7
BUS5 (CN10-6
BUS4 (CN10-5
BUS3 (CN10-4
BUS2 (CN10-3
BUS1 (CN10-2
BUS0 (CN10-1
GND Vcc
2N
LS244
1G 2G
Vcc
GND
A11
OE
4N
2732A
CE
O7 O6 O5 O4 O3 O2 O1 O0
A10 A9 A8 A7 A6 A5 A4 A3 A2 A1 A0
1KΩ R8
GND Vcc CLR
5N
LS273
CLK
D7 D6 D5 D4 D3 D2 D1 D0
DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0
P25
P27
P24
PROG
DTIN (2-1E
BLNK (1-5D
DTCLK (2-1E
R10 1KΩ
4M
LS05
PDCLK (2-1B
R9 680Ω
ALE
100PF C31
Vcc
VDD
Vss
C32 330PF
RD
TEST0
P26
TEST1
RST
R11 4.7KΩ
TEST
ACK (CN10-10
OBF (CN10-9
POFR (CN10-11
POFR (1-5D)
R12 4.7KΩ
1000PF C12
R13 1KΩ
1000PF C33
RESET (2-1B
①
E
D
C
B
A
1
2
3
4
5
6
7
8


+38V
+5V
RESET (1-7A
DTCLK (1-7C
DTIN (1-7C
GNDP
1K LS164
CK CLR
QA QB QC QD QE QF QG QH
1J LB1290
1I LS164
1H LB1290
1G LS164
1F LB1290
1E LS164
1D LB1290
T 0 – T 31
H1 (1-5E
H2 (1-5E
5K LB1290
4K LB1290
3K LB1290
3L LB1290
2L LB1290
1B LB1290
2A LB1290
3A LB1290
5L LS164
4L LS164
2K LS164
3M LS164
1L LS164
1C LS164
1A LS164
4A LS164
PDCLK (1-7C
RESET (1-7A
PD0 (1-7D
PD1 (1-7D
PD2 (1-7D
PD3 (1-7D
PD4 (1-7D
PD5 (1-7D
PD6 (1-7D
PD7 (1-7D
4M LS05
※
R14 4.7KΩ
+47V
R16 22KΩ
Q5 2SC1515
R15 1KΩ
2SC1515 Q4
R17 100KΩ
GNDP
②
A B C D E
1 2 3 4 5 6 7 8

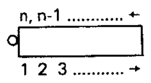
PARTS LOCATION DIAGRAMS


SHARP N5014BC SILK
DISPLAY 32 N5014BC-A
Ⓐ
C6 223C
C5 223C
22K R16
100K R17
1K R15
Q5
Q4
C1515X2
CN11
C2334
Q1
T
2260-100VX2
C3 100D-50V
D2
N09CX2
D1
R1 4P7K
R2
56
C4 103C
C9 471C
R3
ZD1
ZD2
5P6K
R4
R6
820
RD8P2
1P8K
R5
C945
Q2
Q3
R7
D3
4P7K
4A
LS164
3A
LB1290
2A
LB1290
1A
LS164
C7
C8
76
77
152
1
DISPLAY
1B LB1290
1C LS164
1D LB1290
1E LS164
1F LB1290
1G LS164
1H LB1290
1I LS164
1J LB1290
1K LS164
1L LS164
223C C21
223C C20
C19 223C
C18 223C
5K
4K LB1290
3K LB1290
LB1290
2K
LS164
5L
4L LS164
LS164
3L
2L LB1290
LB1290
4M
C12 1000PF
LS05
3M
D4
LS164
R18
1K
R10
R14
4P7K
R12
R9
R8
4P7K
680
1K
5N
4N LS273
2732
2N
LS244
1N
C16 223C
C17 223C
C13 223C
C14 223C
C15 223C
C1 226T-16V
C2 223C
CN10
20 19
2 1
C33 1000PF
C32 330PF
C30 330PF
C31 1000PF
8039
4P7K R11
TEST
15C C10
15C C11
X1
11MHZ




Ⓐ
2
Parts side
1

1. IC (n-pin)



2. Capacitor (—||—)

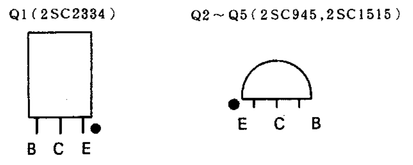
- Classfication
  - xxxC : Ceramic
  - xxxT : Tantalum electrolytic
  - xxxD : Aluminum foil electrolytic
  - xxxM : Polyester film (± 10%)
  - xxxMJ : Polyester film (± 5%)

- Capacitance (Ex.)
  - 102: 10×10^2 (PF)
  - 392: 392×10^2 (PF)
  - 227: 22×10^7 (PF) = 220μF

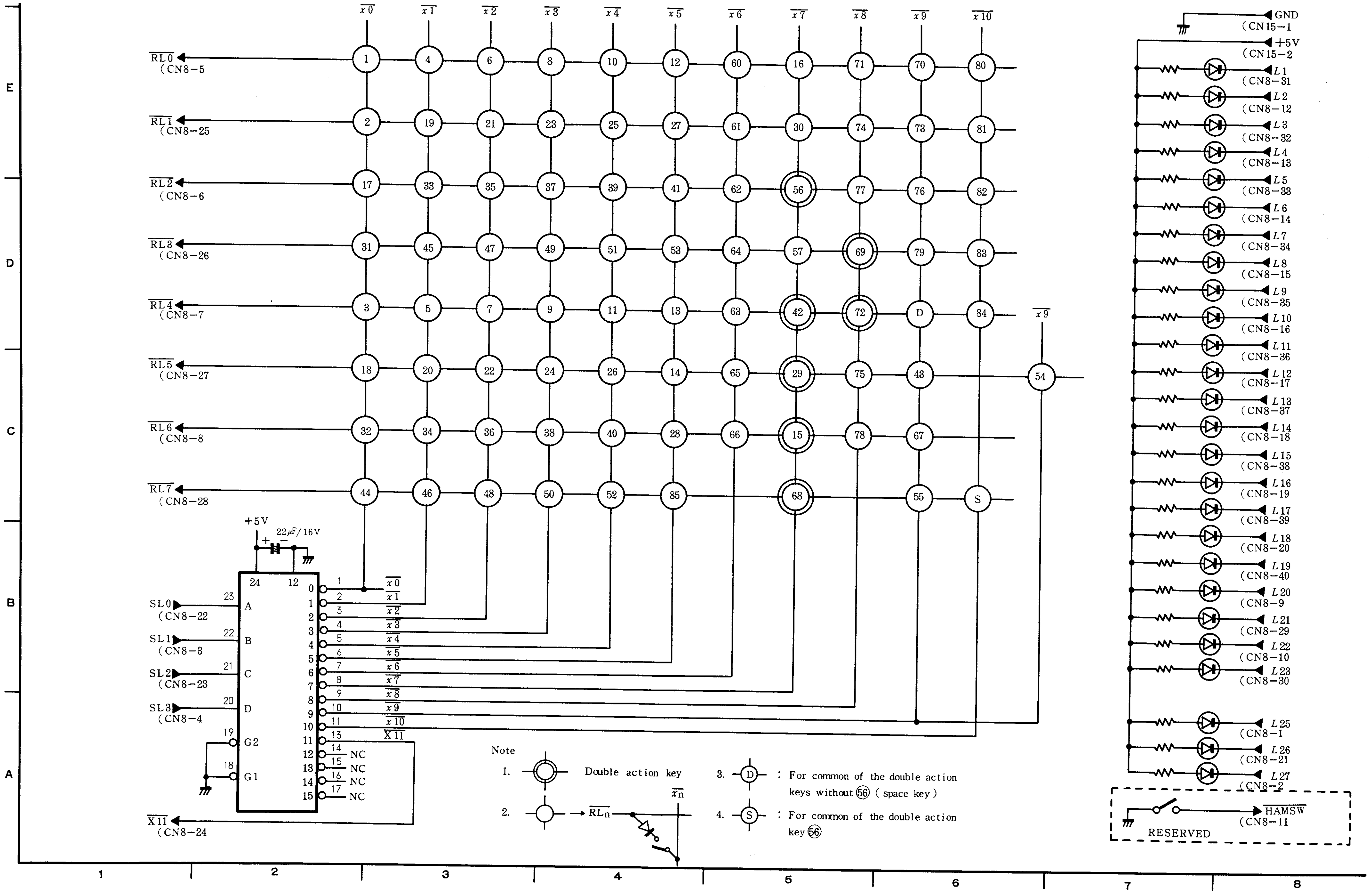
3. Resistor (-WW-)

Resistance value (Ex.)
330 → 330Ω
3P3K → 3.3kΩ

4. Transistor

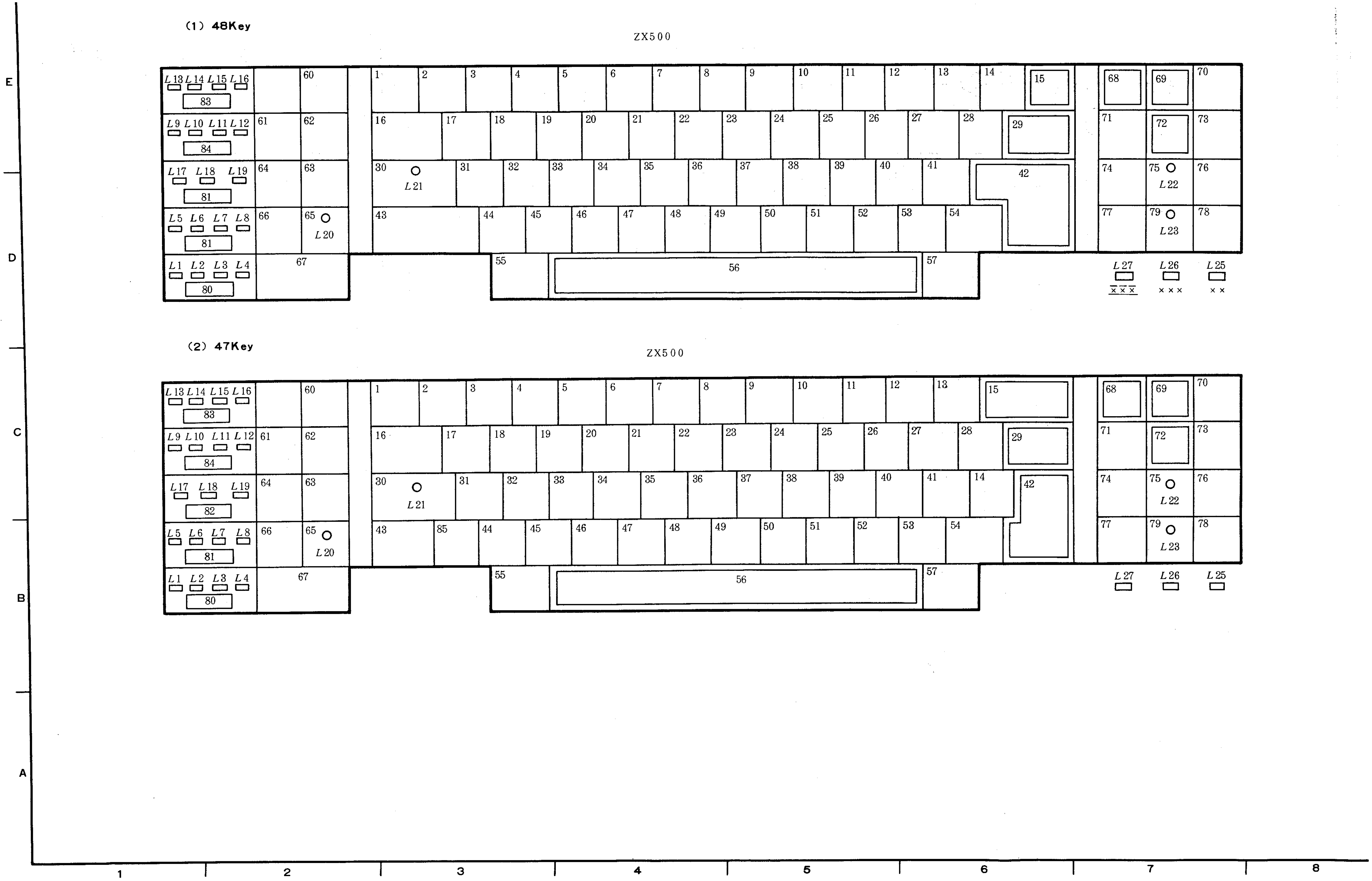

Q1 (2SC2334)
B C E
Q2～Q5 (2SC945, 2SC1515)
E C B

2-3. KEYBOARD

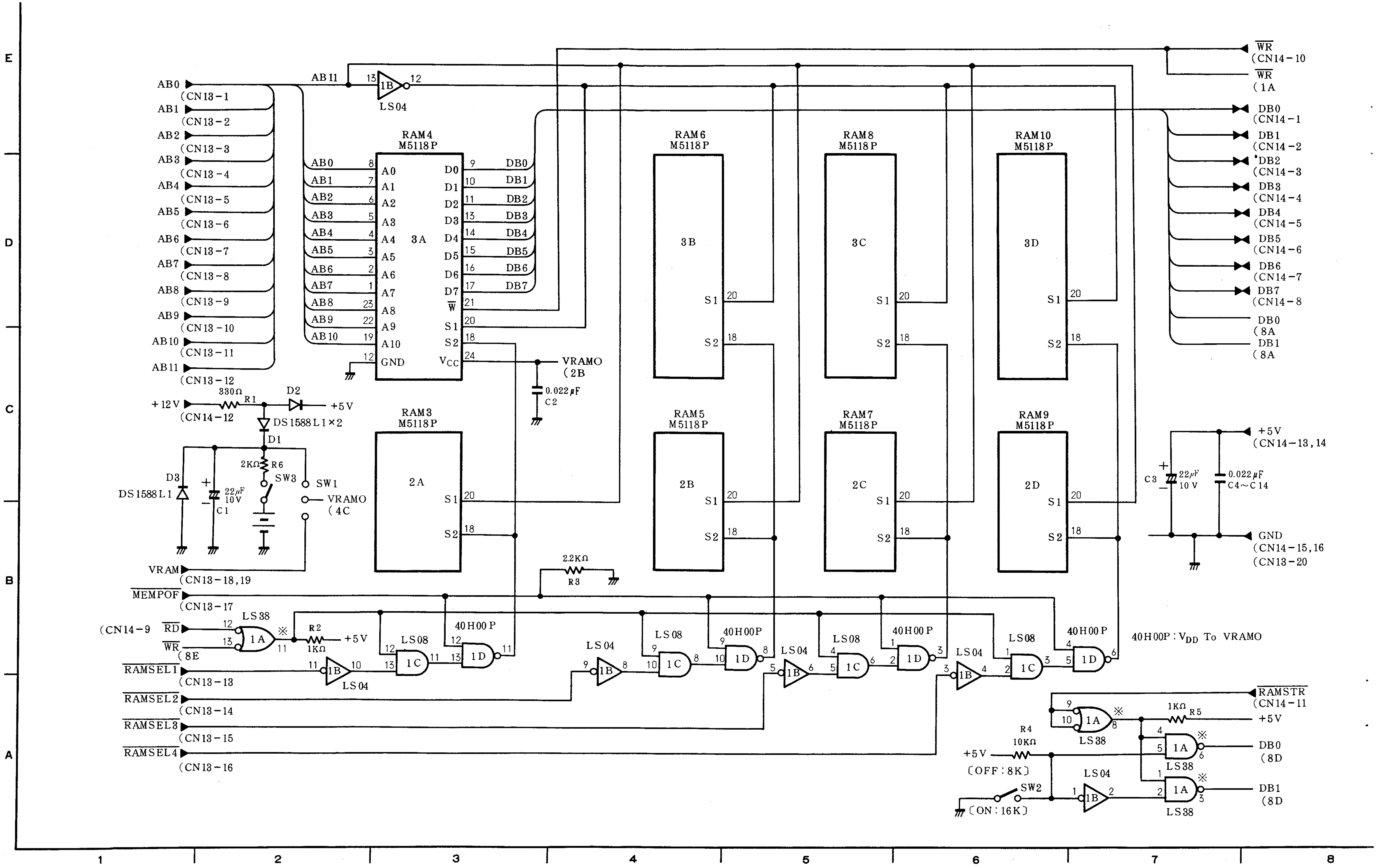

x0 x1 x2 x3 x4 x5 x6 x7 x8 x9 x10
RL0 (CN8-5
RL1 (CN8-25
RL2 (CN8-6
RL3 (CN8-26
RL4 (CN8-7
RL5 (CN8-27
RL6 (CN8-8
RL7 (CN8-28
1 4 6 8 10 12 60 16 71 70 80
2 19 21 23 25 27 61 30 74 73 81
17 33 35 37 39 41 62 56 77 76 82
31 45 47 49 51 53 64 57 69 79 83
3 5 7 9 11 13 63 42 72 D 84
18 20 22 24 26 14 65 29 75 43 54
32 34 36 38 40 28 66 15 78 67
44 46 48 50 52 85 68 55 S
x9
+5V
22μF/16V
24 12
SL0 (CN8-22 23 A
SL1 (CN8-3 22 B
SL2 (CN8-23 21 C
SL3 (CN8-4 20 D
19 G2
18 G1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
1 2 3 4 5 6 7 8 9 10 11 13 14 15 16 17
x0 x1 x2 x3 x4 x5 x6 x7 x8 x9 x10 X11
NC NC NC NC
X11 (CN8-24
GND (CN15-1
+5V (CN15-2
L1 (CN8-31
L2 (CN8-12
L3 (CN8-32
L4 (CN8-13
L5 (CN8-33
L6 (CN8-14
L7 (CN8-34
L8 (CN8-15
L9 (CN8-35
L10 (CN8-16
L11 (CN8-36
L12 (CN8-17
L13 (CN8-37
L14 (CN8-18
L15 (CN8-38
L16 (CN8-19
L17 (CN8-39
L18 (CN8-20
L19 (CN8-40
L20 (CN8-9
L21 (CN8-29
L22 (CN8-10
L23 (CN8-30
L25 (CN8-1
L26 (CN8-21
L27 (CN8-2
HAMSW (CN8-11
RESERVED
Note
1. Double action key
2. → RLn xn
3. D : For common of the double action keys without ⑯ (space key)
4. S : For common of the double action key ⑯
E D C B A
1 2 3 4 5 6 7 8

PARTS LOCATION DIAGRAMS

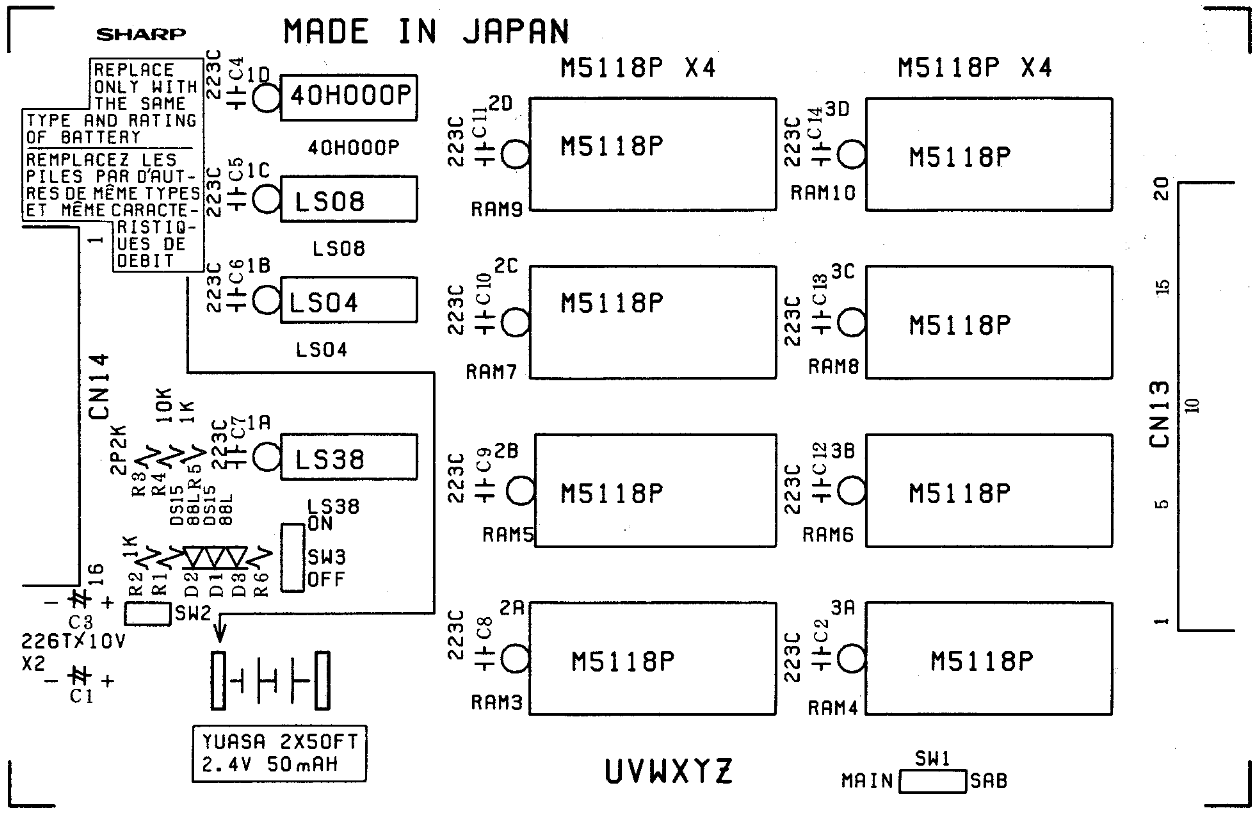
(1) 48Key


ZX500
(2) 47Key
ZX500
E
D
C
B
A
1
2
3
4
5
6
7
8
L13 L14 L15 L16
L9 L10 L11 L12
L17 L18 L19
L5 L6 L7 L8
L1 L2 L3 L4
L20
L21
L22
L23
L27
L26
L25
80
81
82
83
84
85

2-4. OPTION MEMORY PWB

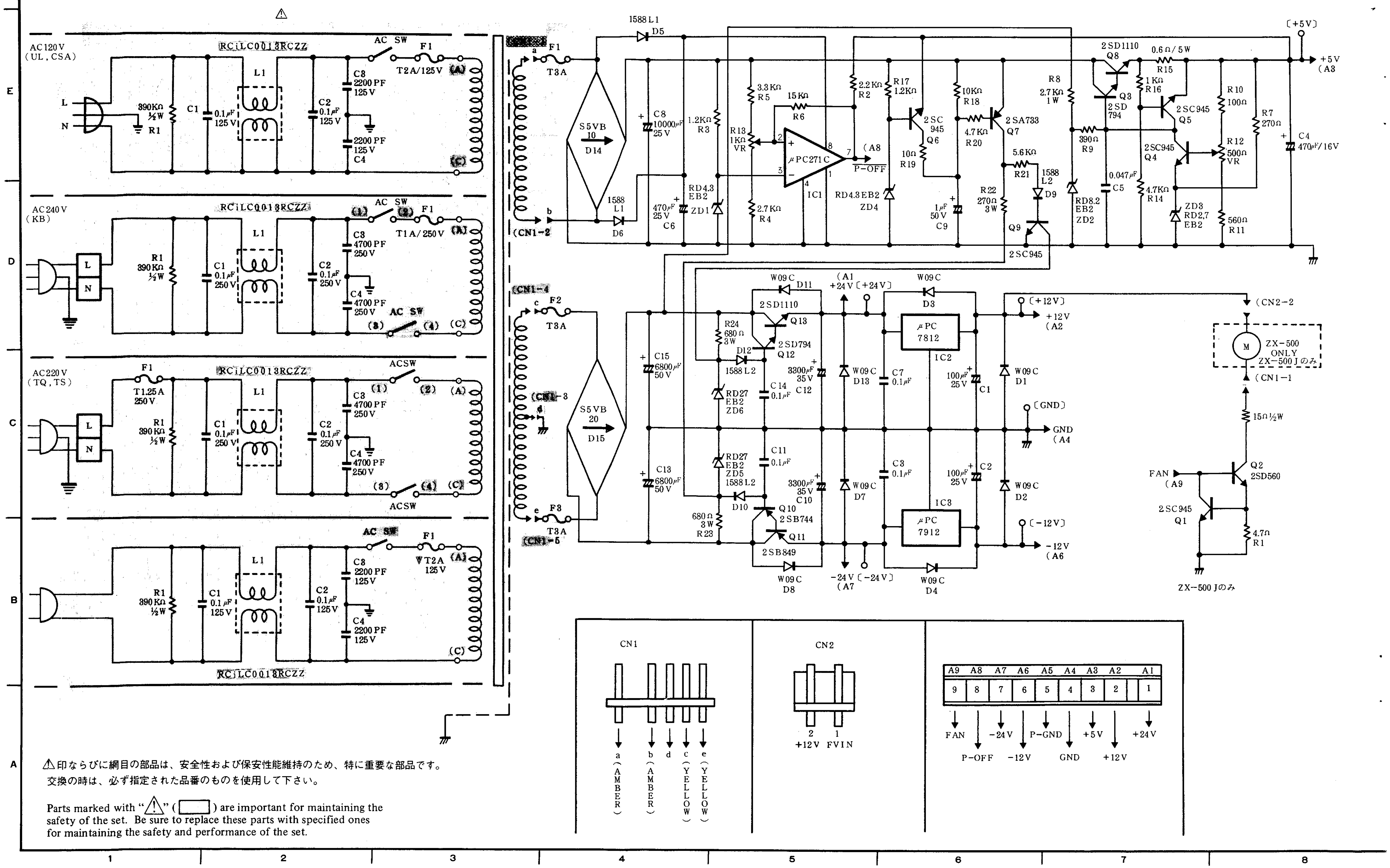

E
D
C
B
A
1
2
3
4
5
6
7
8
AB0 (CN13-1
AB1 (CN13-2
AB2 (CN13-3
AB3 (CN13-4
AB4 (CN13-5
AB5 (CN13-6
AB6 (CN13-7
AB7 (CN13-8
AB8 (CN13-9
AB9 (CN13-10
AB10 (CN13-11
AB11 (CN13-12
AB11
1B
LS04
RAM4 M5118P
3A
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
GND
D0
D1
D2
D3
D4
D5
D6
D7
W
S1
S2
VCC
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
VRAMO (2B
0.022μF C2
RAM6 M5118P
3B
RAM8 M5118P
3C
RAM10 M5118P
3D
RAM3 M5118P
2A
RAM5 M5118P
2B
RAM7 M5118P
2C
RAM9 M5118P
2D
WR (CN14-10
WR (1A
DB0 (CN14-1
DB1 (CN14-2
DB2 (CN14-3
DB3 (CN14-4
DB4 (CN14-5
DB5 (CN14-6
DB6 (CN14-7
DB7 (CN14-8
DB0 (8A
DB1 (8A
+12V (CN14-12
330Ω R1
D2
+5V
DS1588L1×2
D1
2KΩ R6
SW3
SW1
VRAMO (4C
D3 DS1588L1
22μF 10V C1
VRAM (CN13-18,19
MEMPOF (CN13-17
2.2KΩ R3
+5V (CN14-13,14
C3 22μF 10V
0.022μF C4~C14
GND (CN14-15,16 (CN13-20
(CN14-9 RD
WR (8E
LS38
1A
※
R2 1KΩ
+5V
RAMSEL1 (CN13-13
RAMSEL2 (CN13-14
RAMSEL3 (CN13-15
RAMSEL4 (CN13-16
LS08
1C
40H00P
1D
40H00P : VDD To VRAMO
RAMSTR (CN14-11
1KΩ R5
+5V
DB0 (8D
DB1 (8D
R4 10KΩ
+5V
〔OFF : 8K〕
SW2
〔ON : 16K〕

PARTS LOCATION DIAGRAMS


SHARP
MADE IN JAPAN
REPLACE ONLY WITH THE SAME TYPE AND RATING OF BATTERY
REMPLACEZ LES PILES PAR D'AUT-RES DE MÊME TYPES ET MÊME CARACTE-RISTIQ-UES DE DEBIT
1
CN14
16
223C C4 1D 40H000P
40H000P
223C C5 1C LS08
LS08
223C C6 1B LS04
LS04
223C C7 1A LS38
LS38
2P2K R3
10K R4
1K R5
R2 1K
R1
D2 DS15 88L
D1 DS15 88L
D3
R6
SW3 ON OFF
SW2
C3
226TX10V X2
C1
YUASA 2X50FT
2.4V 50mAH
M5118P X4
M5118P X4
223C C11 2D M5118P RAM9
223C C14 3D M5118P RAM10
223C C10 2C M5118P RAM7
223C C13 3C M5118P RAM8
223C C9 2B M5118P RAM5
223C C12 3B M5118P RAM6
223C C8 2A M5118P RAM3
223C C2 3A M5118P RAM4
CN13
20
15
10
5
1
UVWXYZ
SW1
MAIN
SAB

3. ZX-400/500

3-1. POWER SUPPLY


AC120V (UL, CSA)
AC240V (KB)
AC220V (TQ, TS)
RCiLC0013RCZZ
AC SW
ACSW
F1
T2A/125V
T1A/250V
T1.25A 250V
L1
L
N
R1 390KΩ ½W
C1 0.1μF 125V
C1 0.1μF 250V
C2 0.1μF 125V
C2 0.1μF 250V
C3 2200PF 125V
C3 4700PF 250V
C4 2200PF 125V
C4 4700PF 250V
(A)
(C)
(1)
(2)
(3)
(4)
E
D
C
B
A
1588L1 D5
F1 T3A
F2 T3A
F3 T3A
S5VB 10 D14
S5VB 20 D15
1588 L1 D6
(CN1-2
CN1-4
CN1-3
CN1-5
C8 10000μF 25V
C6 470μF 25V
1.2KΩ R3
RD4.3 EB2 ZD1
R13 1KΩ VR
3.3KΩ R5
15KΩ R6
2.7KΩ R4
μPC271C IC1
(A8 P-OFF
2.2KΩ R2
R17 1.2KΩ
2SC945 Q6
10Ω R19
RD4.3EB2 ZD4
1μF 50V C9
10KΩ R18
4.7KΩ R20
2SA733 Q7
5.6KΩ R21
1588 L2 D9
R22 270Ω 3W
Q9 2SC945
R8 2.7KΩ 1W
390Ω R9
RD8.2 EB2 ZD2
2SD1110 Q8
2SD794 Q3
0.047μF C5
0.6Ω/5W R15
1KΩ R16
2SC945 Q5
2SC945 Q4
4.7KΩ R14
ZD3 RD2.7 EB2
R10 100Ω
R12 500Ω VR
560Ω R11
R7 270Ω
C4 470μF/16V
[+5V]
+5V (A3
W09C D11
(A1 +24V [+24V]
W09C D3
2SD1110 Q13
2SD794 Q12
R24 680Ω 3W
D12 1588L2
RD27 EB2 ZD6
C15 6800μF 50V
C14 0.1μF
3300μF 35V C12
W09C D13
C7 0.1μF
μPC 7812 IC2
100μF 25V C1
W09C D1
[+12V]
+12V (A2
[GND]
GND (A4
C13 6800μF 50V
RD27 EB2 ZD5 1588L2
D10
C11 0.1μF
3300μF 35V C10
Q10 2SB744
680Ω 3W R23
Q11 2SB849
W09C D7
C3 0.1μF
μPC 7912 IC3
100μF 25V C2
W09C D2
[-12V]
-12V (A6
W09C D8
-24V [-24V] (A7
W09C D4
(CN2-2
M ZX-500 ONLY ZX-500Jのみ
(CN1-1
15Ω½W
FAN (A9
Q2 2SD560
2SC945 Q1
4.7Ω R1
ZX-500Jのみ
CN1
a (AMBER)
b (AMBER)
d
c (YELLOW)
e (YELLOW)
CN2
2 +12V
1 FVIN
A9 A8 A7 A6 A5 A4 A3 A2 A1
9 8 7 6 5 4 3 2 1
FAN
P-OFF
-24V
-12V
P-GND
GND
+5V
+12V
+24V
1
2
3
4
5
6
7
8

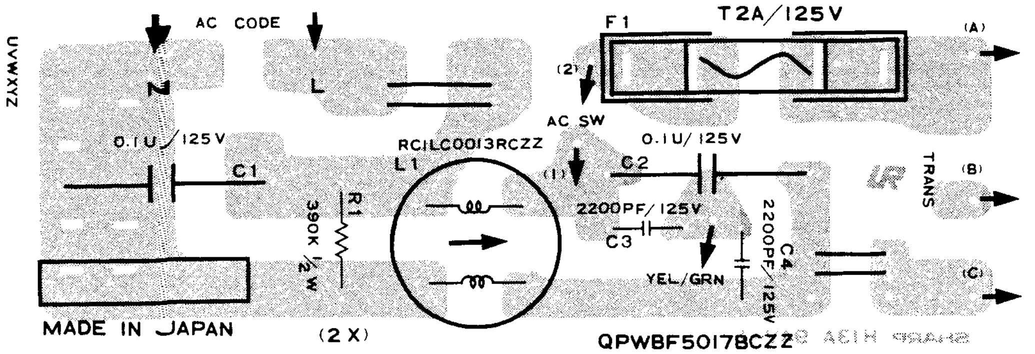
⚠印ならびに網目の部品は、安全性および保安性能維持のため、特に重要な部品です。
交換の時は、必ず指定された品番のものを使用して下さい。

Parts marked with "⚠" (▭) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

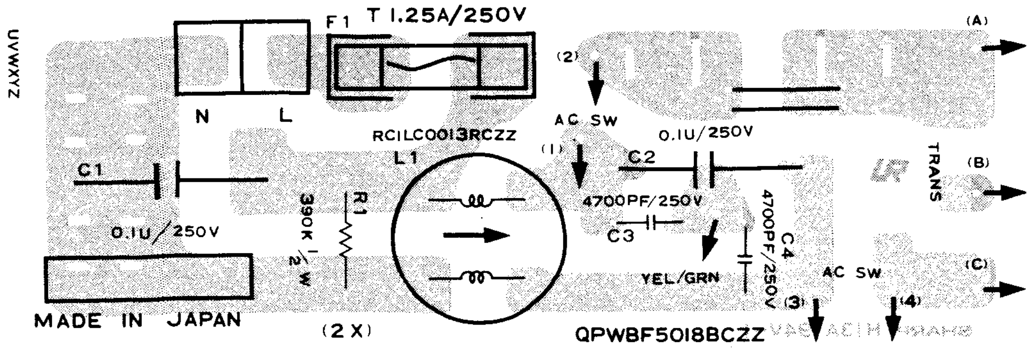
PARTS LOCATION DIAGRAMS

3-1-1. PRIMARY POWERSUPPLY PWB

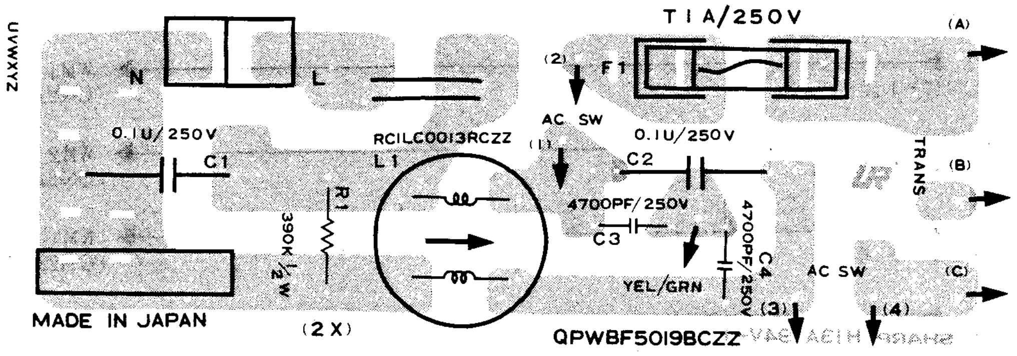
(1) 100V
120V


UVWXYZ
AC CODE
N
L
F1
T2A/125V
(A)
(2)
AC SW
(1)
0.1U/125V
C1
RCILC0013RCZZ
L1
C2
0.1U/125V
R1
390K 1/2 W
2200PF/125V
C3
C4
2200PF/125V
YEL/GRN
TRANS
(B)
(C)
MADE IN JAPAN
(2X)
QPWBF5017BCZZ

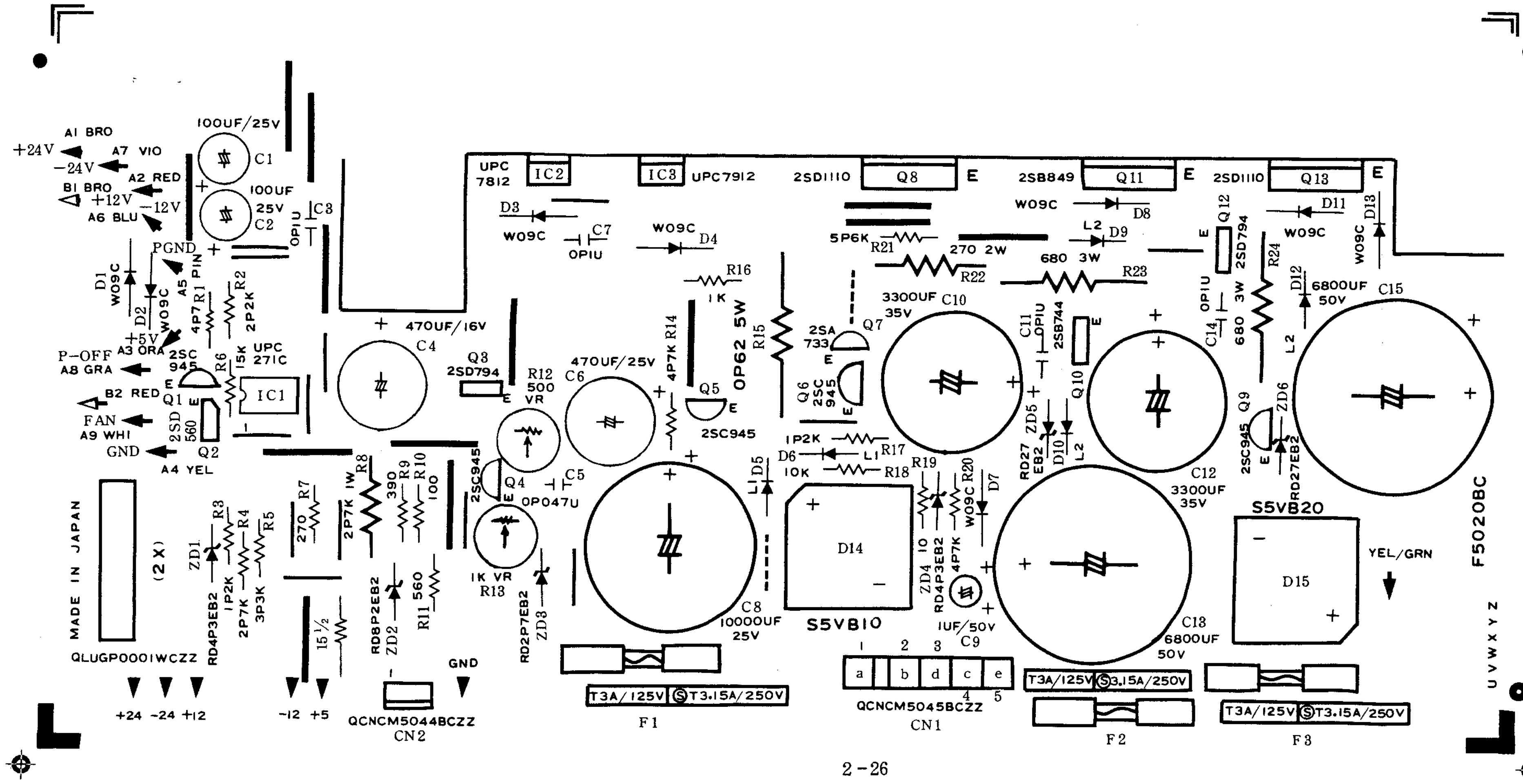
(2) 220V


UVWXYZ
F1
T 1.25A/250V
(A)
(2)
N
L
RCILC0013RCZZ
AC SW
0.1U/250V
L1
C2
(1)
C1
R1
390K 1/2 W
4700PF/250V
C3
C4
4700PF/250V
0.1U/250V
YEL/GRN
AC SW
TRANS
(B)
(C)
(3)
(4)
MADE IN JAPAN
(2X)
QPWBF5018BCZZ

(3) 240V


UVWXYZ
T 1A/250V
(A)
N
L
(2)
F1
AC SW
0.1U/250V
C1
RCILC0013RCZZ
L1
(1)
C2
0.1U/250V
R1
390K 1/2 W
4700PF/250V
C3
C4
4700PF/250V
YEL/GRN
AC SW
TRANS
(B)
(C)
(3)
(4)
MADE IN JAPAN
(2X)
QPWBF5019BCZZ

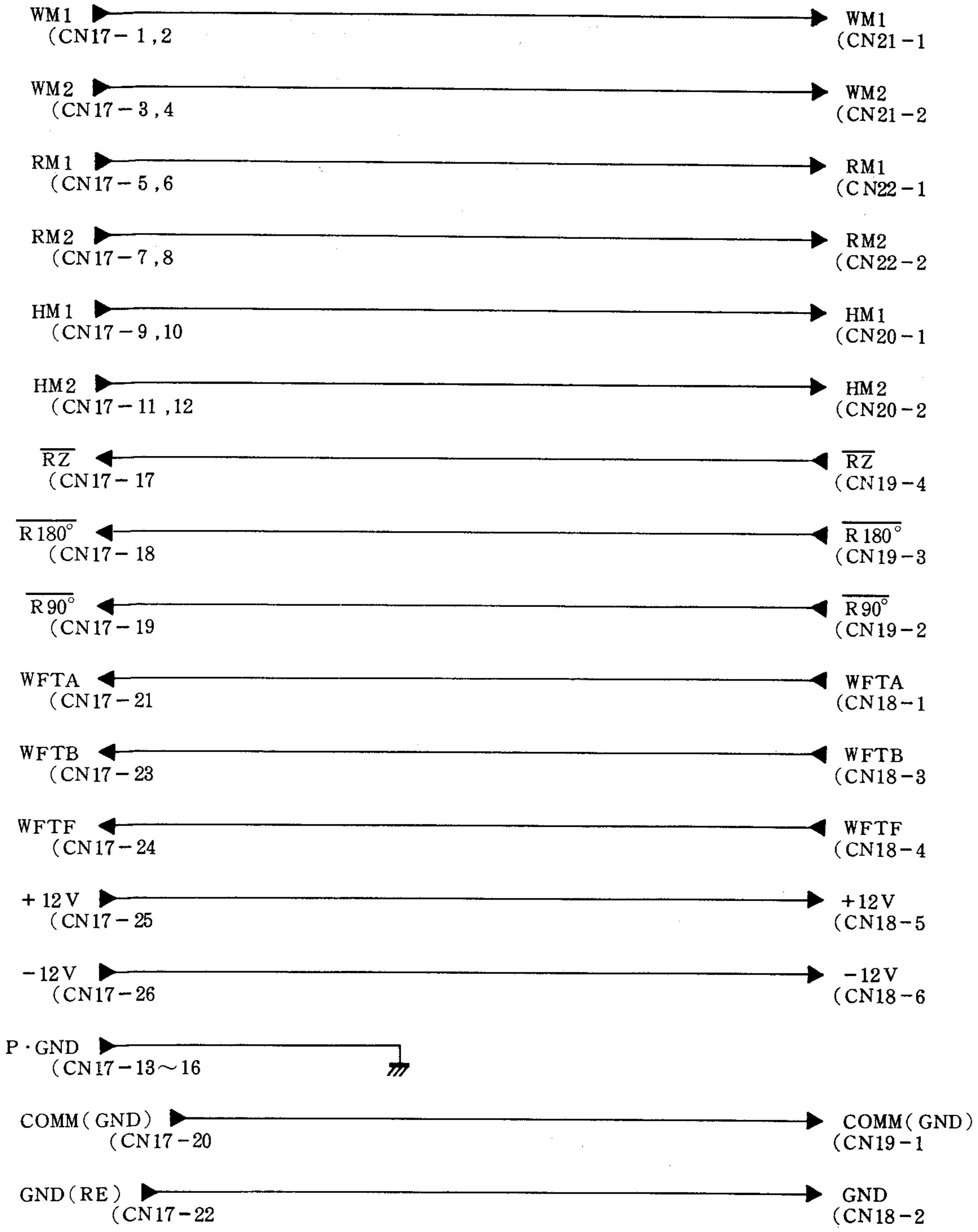
3-1-2. SECONDARY POWER SUPPLY PWB


A1 BRO
+24V
A7 VIO
-24V
A2 RED
B1 BRO
+12V
-12V
A6 BLU
PGND
A5 PIN
D1 W09C
D2 W09C
+5V
A3 ORA
P-OFF
A8 GRA
B2 RED
FAN
A9 WHI
GND
A4 YEL
100UF/25V
C1
100UF 25V
C2
C3
0P1U
R1 4P7
R2 2P2K
2SC 945
Q1
E
R6 15K
UPC 271C
IC1
2SD 560
Q2
UPC 7812
IC2
IC3
UPC7912
D3
W09C
C7
0P1U
W09C
D4
470UF/16V
C4
Q3
2SD794
R12 500 VR
470UF/25V
C6
4P7K R14
Q5
2SC945
R16
1K
0P62 5W
R15
2SC945
Q4
C5
0P047U
1K VR
R13
ZD3
RD2P7EB2
R7
270
R8
2P7K 1W
R9
390
R10
100
R11 560
ZD2
RD8P2EB2
ZD1
RD4P3EB2
R3
1P2K
R4
2P7K
R5
3P3K
15 1/2
MADE IN JAPAN
(2X)
QLUGP0001WCZZ
+24 -24 +12
-12 +5
QCNCM5044BCZZ
CN2
GND
2SD1110
Q8
E
5P6K
R21
270 2W
R22
2SA 733
Q7
Q6 2SC 945
3300UF 35V
C10
1P2K
R17
D6
L1
10K
R18
D5
L1
C8
10000UF
25V
D14
S5VB10
R19
10
ZD4
RD4P3EB2
R20
4P7K
W09C
D7
1UF/50V
C9
1 2 3
a b d c e
4 5
QCNCM5045BCZZ
CN1
T3A/125V
Ⓢ T3.15A/250V
F1
2SB849
Q11
W09C
D8
L2
D9
680 3W
R23
C11
0P1U
2SB744
Q10
ZD5
RD27 EB2
D10
L2
C12
3300UF
35V
C13
6800UF
50V
T3A/125V
Ⓢ3.15A/250V
F2
2SD1110
Q13
Q12
2SD794
C14
0P1U
R24
680 3W
L2
D11
W09C
D13
W09C
D12
6800UF 50V
C15
Q9
2SC945
ZD6
RD27EB2
S5VB20
D15
YEL/GRN
T3A/125V
ⓈT3.15A/250V
F3
F5020BC
UVWXYZ

Fuse

AC input	Specification	Parts code
100V 120V	T3A/125V	QFS-A1010CCZZ
220V 240V	ⓈT3·15A/250V	QFS-C1025CCZZ

3-2. CARRIAGE PWB


WM1 (CN17- 1,2
WM1 (CN21-1
WM2 (CN17-3,4
WM2 (CN21-2
RM1 (CN17-5,6
RM1 (CN22-1
RM2 (CN17-7,8
RM2 (CN22-2
HM1 (CN17-9,10
HM1 (CN20-1
HM2 (CN17-11,12
HM2 (CN20-2
$\overline{\text{RZ}}$ (CN17-17
$\overline{\text{RZ}}$ (CN19-4
$\overline{\text{R 180°}}$ (CN17-18
$\overline{\text{R 180°}}$ (CN19-3
$\overline{\text{R 90°}}$ (CN17-19
$\overline{\text{R 90°}}$ (CN19-2
WFTA (CN17-21
WFTA (CN18-1
WFTB (CN17-23
WFTB (CN18-3
WFTF (CN17-24
WFTF (CN18-4
+12V (CN17-25
+12V (CN18-5
-12V (CN17-26
-12V (CN18-6
P·GND (CN17-13~16
COMM(GND) (CN17-20
COMM(GND) (CN19-1
GND(RE) (CN17-22
GND (CN18-2

III. WIRING DIAGRAMS & CONNECTOR SIGNAL NAME

CONTENTS

1. ZX-400

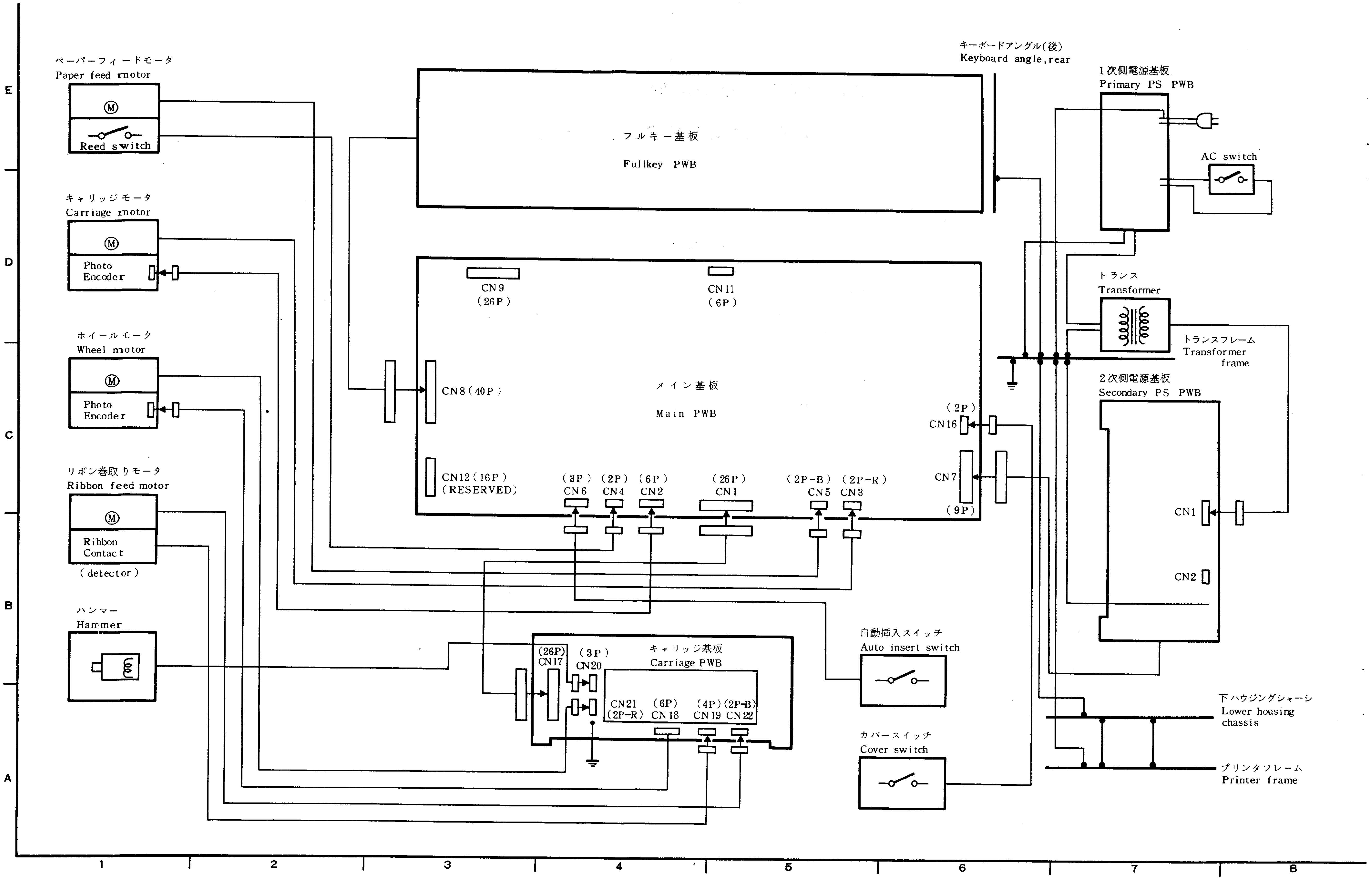
1-1. WIRING DIAGRAMS 3-1
1-2. CONNECTOR SIGNAL NAME 3-2

2. ZX-500

2-1. WIRING DIAGRAMS 3-3
2-2. CONNECTOR SIGNAL NAME 3-4

1. ZX-400

1-1. WIRING DIAGRAMS


ペーパーフィードモータ
Paper feed motor
Reed switch
キャリッジモータ
Carriage motor
Photo Encoder
ホイールモータ
Wheel motor
Photo Encoder
リボン巻取りモータ
Ribbon feed motor
Ribbon Contact
(detector)
ハンマー
Hammer
フルキー基板
Fullkey PWB
キーボードアングル(後)
Keyboard angle, rear
1次側電源基板
Primary PS PWB
AC switch
トランス
Transformer
トランスフレーム
Transformer frame
2次側電源基板
Secondary PS PWB
CN1
CN2
メイン基板
Main PWB
CN9 (26P)
CN11 (6P)
CN8 (40P)
CN12 (16P) (RESERVED)
(3P) CN6
(2P) CN4
(6P) CN2
(26P) CN1
(2P-B) CN5
(2P-R) CN3
(2P) CN16
CN7 (9P)
キャリッジ基板
Carriage PWB
(26P) CN17
(3P) CN20
CN21 (2P-R)
(6P) CN18
(4P) CN19
(2P-B) CN22
自動挿入スイッチ
Auto insert switch
カバースイッチ
Cover switch
下ハウジングシャーシ
Lower housing chassis
プリンタフレーム
Printer frame
E
D
C
B
A
1
2
3
4
5
6
7
8

1-2. CONNECTOR SIGNAL NAME

CN1

DDK FRC2-C 26S13-0L

PIN No.	Signal	PIN No.	Signal
1	WM1	2	WM1
3	WM2	4	WM2
5	RM1	6	RM1
7	RM2	8	RM2
9	HM1	10	HM1
11	HM2	12	HM2
13	PGND	14	PGND
15	PGND	16	PGND
17	$\overline{\text{RZ}}$	18	$\overline{\text{R180}}$
19	$\overline{\text{R90}}$	20	GND
21	WFTA	22	GND
23	WFTB	24	WFTF
25	+12V	26	-12V

CN2

MOLEX 5045-06A

PIN No.	Signal
1	CFTA
2	GND
3	CFTB
4	CFTF
5	+12V
6	-12V

CN3

MOLEX 5045-02F (Red)

PIN No.	Signal
1	CM1
2	CM2

CN4

MOLEX 5045-02F

PIN No.	Signal
1	$\overline{\text{PZ}}$
2	GND

CN5

MOLEX 5045-02F (Black)

PIN No.	Signal
1	PM1
2	PM2

CN6

MOLEX 5045-03F

PIN No.	Signal
1	$\overline{\text{LFSW}}$
2	GND
3	

CN7

MOLEX 5276-09A

PIN No.	Signal
1	+24V
2	+12V
3	+5V
4	GND
5	PGND
6	-12V
7	-24V
8	$\overline{\text{POF}}$
9	FAN

CN8

No.	Signal	No.	Signal
1	GND	21	GND
2	SL0	22	SL1
3	SL2	23	SL3
4	$\overline{\text{X11}}$	24	$\overline{\text{RL0}}$
5	$\overline{\text{RL1}}$	25	$\overline{\text{RL2}}$
6	$\overline{\text{RL3}}$	26	$\overline{\text{RL4}}$
7	$\overline{\text{RL5}}$	27	$\overline{\text{RL6}}$
8	$\overline{\text{RL7}}$	28	*L*20
9	*L*21	29	*L*22
10	*L*24	30	*L*25
11	*L*26	31	*L*27
12	$\overline{\text{HAMSW}}$	32	
13		33	*L*1
14	*L*2	34	*L*3
15	*L*4	35	*L*5
16	*L*6	36	*L*7
17	*L*8	37	*L*9
18	*L*10	38	*L*17
19	*L*18	39	*L*19
20	+5V	40	+5V

CN9

MOLEX 5342-26G1

PIN No.	Signal	PIN No.	Signal
1	AB0	2	AB1
3	AB2	4	AB3
5	AB4	6	AB5
7	AB6	8	AB7
9	AB8	10	AB9
11	AB10	12	AB11
13	$\overline{\text{EXSEL}}$	14	$\overline{\text{RD}}$
15	DB0	16	DB1
17	DB2	18	DB3
19	DB4	20	DB5
21	DB6	22	DB7
23	$\overline{\text{EXROM}}$	24	+5V
25	GND	26	GND

CN11

MOLEX 5045-06A

PIN No.	Signal
1	W ZERO
2	C ZERO
3	WH
4	CG
5	+5V
6	GND

CN12 (RESERVED)

MOLEX 5342-16G1

PIN No.	Signal	PIN No.	Signal
1	$\overline{\text{RL0}}$	2	$\overline{\text{RL1}}$
3	$\overline{\text{RL2}}$	4	$\overline{\text{RL3}}$
5	$\overline{\text{RL4}}$	6	$\overline{\text{RL5}}$
7	$\overline{\text{RL6}}$	8	$\overline{\text{RL7}}$
9	SL3	10	SL2
11	SL1	12	SL0
13	+5V	14	+5V
15	GND	16	GND

CN14

MOLEX 3022-16B

PIN No.	Signal
1	DB0
2	DB1
3	DB2
4	DB3
5	DB4
6	DB5
7	DB6
8	DB7
9	$\overline{\text{RD}}$
10	$\overline{\text{WR}}$
11	$\overline{\text{RAMSTR}}$
12	
13	+5V
14	+5V
15	GND
16	GND

CN16

MOLEX 5045-02F

Pin No.	Signal
1	$\overline{\text{COVSW}}$
2	GND

CN17

HIF-26P-254DS

PIN No.	Signal	PIN No.	Signal
1	WM1	2	WM1
3	WM2	4	WM2
5	RM1	6	RM1
7	RM2	8	RM2
9	HM1	10	HM1
11	HM2	12	HM2
13	PGND	14	PGND
15	PGND	16	PGND
17	$\overline{\text{RZ}}$	18	$\overline{\text{R}180^\circ}$
19	$\overline{\text{R}90^\circ}$	20	COMM (GND)
21	WFTA	22	GND (RE)
23	WFTB	24	WFTF
25	+12V	26	-12V

CN18

MOLEX 5395-06

PIN No.	Signal
1	WFTA
2	GND
3	WFTB
4	WFTF
5	+12V
6	-12V

CN19

MOLEX 5267-04A

PIN No.	Signal
1	COMM (GND)
2	$\overline{\text{R}90^\circ}$
3	$\overline{\text{R}180^\circ}$
4	$\overline{\text{RZ}}$

CN20

MOLEX 5267-03A

PIN No.	Signal
1	HM1
2	HM2
3	N/C

CN21

MOLEX 5267-02A (Red)

PIN No.	Signal
1	WM1
2	WM2

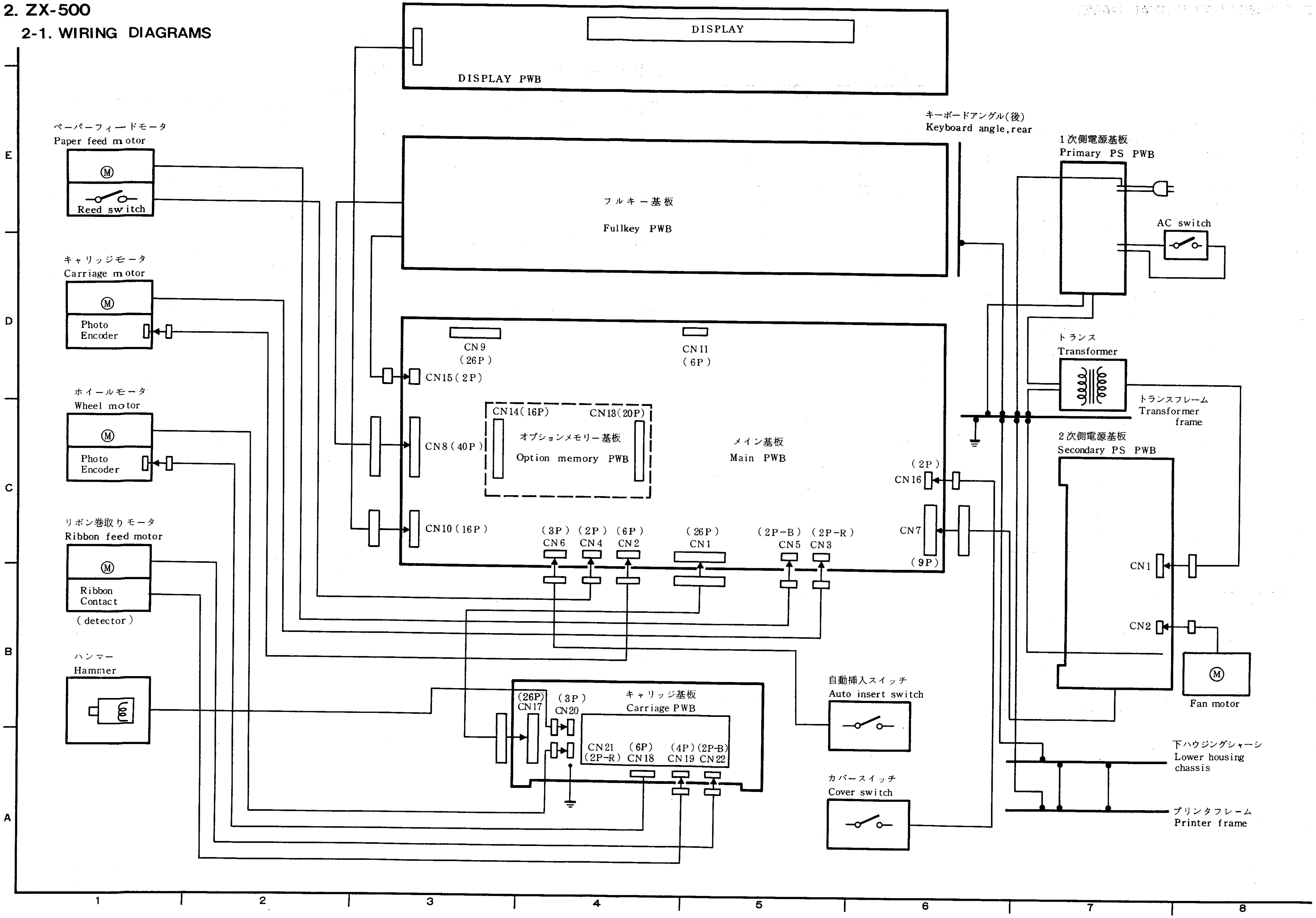
CN22

MOLEX 5267-02A (Black)

PIN No.	Signal
1	RM1
2	RM2

2. ZX-500

2-1. WIRING DIAGRAMS


DISPLAY
DISPLAY PWB
ペーパーフィードモータ
Paper feed motor
Reed switch
キャリッジモータ
Carriage motor
Photo Encoder
ホイールモータ
Wheel motor
Photo Encoder
リボン巻取りモータ
Ribbon feed motor
Ribbon Contact
(detector)
ハンマー
Hammer
フルキー基板
Fullkey PWB
キーボードアングル(後)
Keyboard angle, rear
1次側電源基板
Primary PS PWB
AC switch
トランス
Transformer
トランスフレーム
Transformer frame
2次側電源基板
Secondary PS PWB
CN1
CN2
Fan motor
CN9 (26P)
CN11 (6P)
CN15 (2P)
CN8 (40P)
CN14 (16P)
CN13 (20P)
オプションメモリー基板
Option memory PWB
メイン基板
Main PWB
(2P) CN16
CN10 (16P)
(3P) CN6
(2P) CN4
(6P) CN2
(26P) CN1
(2P-B) CN5
(2P-R) CN3
CN7 (9P)
キャリッジ基板
Carriage PWB
(26P) CN17
(3P) CN20
CN21 (2P-R)
(6P) CN18
(4P) CN19
(2P-B) CN22
自動挿入スイッチ
Auto insert switch
カバースイッチ
Cover switch
下ハウジングシャーシ
Lower housing chassis
プリンタフレーム
Printer frame
E
D
C
B
A
1
2
3
4
5
6
7
8

2-2. CONNECTOR SIGNAL NAME

CN1

DDK FRC2-C26S13-0L

PIN No.	Signal	PIN No.	Signal
1	WM1	2	WM1
3	WM2	4	WM2
5	RM1	6	RM1
7	RM2	8	RM2
9	HM1	10	HM1
11	HM2	12	HM2
13	PGND	14	PGND
15	PGND	16	PGND
17	$\overline{\text{RZ}}$	18	$\overline{\text{R180}}$
19	$\overline{\text{R90}}$	20	GND
21	WFTA	22	GND
23	WFTB	24	WFTF
25	+12V	26	−12V

CN2

MOLEX 5045-06A

PIN No.	Signal
1	CFTA
2	GND
3	CFTB
4	CFTF
5	+12V
6	−12V

CN3

MOLEX 5045-02F (Red)

PIN No.	Signal
1	CM1
2	CM2

CN4

MOLEX 5045-02F

PIN No.	Signal
1	$\overline{\text{PZ}}$
2	GND

CN5

MOLEX 5045-02F (Black)

PIN No.	Signal
1	PM1
2	PM2

CN6

MOLEX 5045-03F

PIN No.	Signal
1	$\overline{\text{LFSW}}$
2	GND
3	

CN7

MOLEX 5276-09A

PIN No.	Signal
1	+24V
2	+12V
3	+5V
4	GND
5	PGND
6	−12V
7	−24V
8	$\overline{\text{POF}}$
9	FAN

CN8

No.	Signal	No.	Signal
1	*L*25	21	*L*26
2	*L*27	22	SL0
3	SL1	23	SL2
4	SL3	24	$\overline{x11}$
5	$\overline{\text{RL0}}$	25	$\overline{\text{RL1}}$
6	$\overline{\text{RL2}}$	26	$\overline{\text{RL3}}$
7	$\overline{\text{RL4}}$	27	$\overline{\text{RL5}}$
8	$\overline{\text{RL6}}$	28	$\overline{\text{RL7}}$
9	*L*20	29	*L*21
10	*L*22	30	*L*23
11	$\overline{\text{HAMSW}}$	31	*L*1
12	*L*2	32	*L*3
13	*L*4	33	*L*5
14	*L*6	34	*L*7
15	*L*8	35	*L*9
16	*L*10	36	*L*11
17	*L*12	37	*L*13
18	*L*14	38	*L*15
19	*L*16	39	*L*17
20	*L*18	40	*L*19

CN9

MOLEX 5342-26G1

PIN No.	Signal	PIN No.	Signal
1	AB0	2	AB1
3	AB2	4	AB3
5	AB4	6	AB5
7	AB6	8	AB7
9	AB8	10	AB9
11	AB10	12	AB11
13	$\overline{\text{EXSEL}}$	14	$\overline{\text{RD}}$
15	DB0	16	DB1
17	DB2	18	DB3
19	DB4	20	DB5
21	DB6	22	DB7
23	$\overline{\text{EXROM}}$	24	+5V
25	GND	26	GND

CN10

DDK FRC2-C20L13-0L

PIN No.	Signal	PIN No.	Signal
1	BUS0	2	BUS1
3	BUS2	4	BUS3
5	BUS4	6	BUS5
7	BUS6	8	BUS7
9	$\overline{\text{OBF}}$	10	$\overline{\text{ACK}}$
11	$\overline{\text{POFR}}$	12	
13	+5V	14	+5V
15	+24V	16	+24V
17	PGND	18	PGND
19	GND	20	GND

CN11

MOLEX 5045-06A

PIN No.	Signal
1	W ZERO
2	C ZERO
3	WH
4	CG
5	+5V
6	GND

CN13

MOLEX 3022-20B

PIN No.	Signal
1	AB0
2	AB1
3	AB2
4	AB3
5	AB4
6	AB5
7	AB6
8	AB7
9	AB8
10	AB9
11	AB10
12	AB11
13	$\overline{\text{RAMSEL1}}$
14	$\overline{\text{RAMSEL2}}$
15	$\overline{\text{RAMSEL3}}$
16	$\overline{\text{RAMSEL4}}$
17	$\overline{\text{MEMPOF}}$
18	V_{RAM}
19	V_{RAM}
20	GND

CN14

MOLEX 3022-16B

PIN No.	Signal
1	DB0
2	DB1
3	DB2
4	DB3
5	DB4
6	DB5
7	DB6
8	DB7
9	$\overline{\text{RD}}$
10	$\overline{\text{WR}}$
11	$\overline{\text{RAMSTR}}$
12	+12V
13	+5V
14	+5V
15	GND
16	GND

CN15

MOLEX 5274-02A

PIN No.	Signal
1	GND
2	+5V

CN17

HIF-26P-254DS

PIN No.	Signal	PIN No.	Signal
1	WM1	2	WM1
3	WM2	4	WM2
5	RM1	6	RM1
7	RM2	8	RM2
9	HM1	10	HM1
11	HM2	12	HM2
13	PGND	14	PGND
15	PGND	16	PGND
17	$\overline{\text{RZ}}$	18	$\overline{\text{R180}^\circ}$
19	$\overline{\text{R90}^\circ}$	20	COMM(GND)
21	WFTA	22	GND(RE)
23	WFTB	24	WFTF
25	+12V	26	−12V

CN18

MOLEX 5395-06

PIN No.	Signal
1	WFTA
2	GND
3	WFTB
4	WFTF
5	+12V
6	−12V

CN16

MOLEX 5045-02F

PIN No.	Signal
1	$\overline{\text{COVSW}}$
2	GND

CN19

MOLEX 5267-04A

PIN No.	Signal
1	COMM(GND)
2	$\overline{\text{R90}^\circ}$
3	$\overline{\text{R180}^\circ}$
4	$\overline{\text{RZ}}$

CN20

MOLEX 5267-03A

PIN No.	Signal
1	HM1
2	HM2
3	N/C

CN21

MOLEX 5267-02A (Red)

PIN No.	Signal
1	WM1
2	WM2

CN22

MOLEX 5267-02A (Black)

PIN No.	Signal
1	RM1
2	RM2

SHARP PARTS GUIDE

MODEL ZX400/500

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安全性・信頼性確保のため部品は、必ず正規のものをご使用下さい。
⚠印の商品は、安全上重要な部品です。交換をする時は、安全および性能維持のため必ず指定の部品をご使用下さい。

Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

1 メイン基板 (MAIN PWB) ZX-400

NO.	PARTS CODE	PRICE RANK Ja	PRICE RANK Ex	NEW MARK	PART RANK	DESCRIPTION
1	LBSHZ5012BCZZ	DB	AB		C	ブッシング Bushing
2	PRDAF5011BCZZ	DX	AK		C	ホウネツバン Heat sink
3	QCNCM5033BCZZ	DX	AH	N	C	コネクター Connector (26pin) [CN-1]
4	QCNCM5034BCZZ	DF	AD		C	コネクター Connector (6pin) [CN-2]
5	QCNCM5035BCZZ	DC	AB		B	コネクター Connector (2pin)(RED) [CN-3]
7	QCNCM5037BCZZ	DC	AB		B	コネクター Connector (2pin) [CN-4,16]
8	QCNCM5038BCZZ	DC	AC		B	コネクター Connector (3pin) [CN-6]
9	QCNCM5039BCZZ	DM	AF		C	コネクター Connector (9pin) [CN-7]
10	QCNCM5040BCZZ	EC	AL		C	コネクター Connector (40pin) [CN-8]
11	QCNCM5041BCZZ	DT	AG		C	コネクター Connector (26pin) [CN-9]
12	QCNCM5052BCZZ	DF	AD		C	コネクター Connector (6pin) [CN-11]
13	QCNCM5053BCZZ	DC	AB		B	コネクター Connector (2pin) [CN-5]
15	QSOCZ6424ACZZ	DK	AE	N	C	ICソケット IC soket (24pin)
17	QSW-Z2057SCZZ	ES	AQ		B	デップ スイッチ Dip switch (8point)
18	RALMB5010BCZZ	DQ	AF		C	ブザー Buzzer
19	RC-E1H227BCZU	DE	AC		C	コンデンサー Capacitor (50WV 220μF)
20	RC-F1J224BCZZ	EB	AL		C	コンデンサー Capacitor (63WV 0.22μF)
21	RC-F1J334BCZZ	EC	AL		C	コンデンサー Capacitor (63WV 0.33μF)
22	RCRSQ5011BCZZ	DX	AH		C	クリスタル Crystal oscillator (6MHz)
23	RVR-M5213QCN1	DX	AH		C	ボリウム Variable resistor (500Ω)
24	RVR-M5310QCN1	DY	AK		C	ボリウム Variable resistor (5KΩ)
25	UBATN2318RCZZ	EY	AR		B	バッテリー Battery
26	VCEAAU1HW105Q	DB	AB		C	コンデンサー Capacitor (50WV 1.0μF)
27	VCEAAU1HW475Q	DB	AB		C	コンデンサー Capacitor (50WV 4.7μF)
28	VCKYPU1HB102K	DA	AA		C	コンデンサー Capacitor (50WV 1000pF)
29	VCKYPU1HB221K	DA	AB		C	コンデンサー Capacitor (50WV 220pF)
30	VCKYPU1HB222K	DA	AA		C	コンデンサー Capacitor (50WV 2200pF)
31	VCKYPU1HB331K	DA	AA		C	コンデンサー Capacitor (50WV 330pF)
32	VCKYPU1HF223Z	DB	AA		C	コンデンサー Capacitor (50WV 22000pF)
33	VCQPKU2AA152G	DF	AD		C	コンデンサ Capacitor (100WV 1500PF)
34	VCQPKU2AA153G	DL	AF		C	コンデンサー Capacitor (100WV 0.015μF)
35	VCQPKU2AA333G	DG	AD		C	コンデンサ Capacitor (100WV 0.033μF)
36	VCQPKU2AA392J	DD	AC		C	コンデンサー Capacitor (100WV 3900pF)
37	VCQPKU2AA473G	DS	AE		C	コンデンサ Capacitor (100WV 0.047μF)
38	VCQPKU2AA682G	DF	AD		C	コンデンサー Capacitor (100WV 6800pF)
39	VCQYKU1HM473K	DB	AB		C	コンデンサー Capacitor (50WV 0.047μF)
40	VCQYKU1HM102K	DB	AA		C	コンデンサー Capacitor (50WV 1000pF)
41	VCQYKU1HM103K	DB	AB		C	コンデンサー Capacitor (50WV 0.01μF)
42	VCQYKU1HM104K	DD	AB		C	コンデンサ Capacitor (50WV 0.10μF)
43	VCSATU1CE226M	DL	AE		C	コンデンサー Capacitor (16WV 22μF)
44	VCSATU1EE335M	DH	AD		C	コンデンサー Capacitor (25WV 3.3μF)
46	VHDDS1588L1-1	DB	AD		B	ダイオード Diode (1S1588L1)
47	VHDEU2/////-1	DF	AD		B	ダイオード Diode (EU2)
48	VHERD5.1E4/-1	DH	AC		B	ツェナーダイオード Zener diode (RD5.1E4)
49	VHiL290////-1	FK	AU		B	IC IC (L290)
50	VHiL291////-1	FK	AU		B	IC IC (L291)
51	VHiL292////-1	GK	BA		B	IC IC (L292)
52	VHiL293////-1	FN	AV		B	IC IC (L293)
53	VHiM74LS00/-1	DL	AE		B	IC IC (M74LS00P)
54	VHiM74LS04/-1	DL	AE		B	IC IC (M74LS04P)
55	VHiM74LS08/-1	DL	AE		B	IC IC (M74LS08P)
56	VHiM74LS125-1	DY	AH		B	IC IC (M74LS125P)
57	VHiM74LS155-1	DX	AH		B	IC IC (M74LS155P)
58	VHiM74LS175-1	DS	AG		B	IC IC (M74LS175P)
59	VHiM74LS273-1	EM	AP		B	IC IC (M74LS273P)
60	VHiM74LS32/-1	DL	AF		B	IC IC (M74LS32P)
61	VHiM74LS74/-1	DQ	AG		B	IC IC (M74LS74P)
62	VHiSN7405N/-1	DY	AG		B	IC IC (SN7405N/-1)
63	VHiSN7406N/-1	DS	AG		B	IC IC (SN7406N)
64	VHiTC40H000P1	DQ	AF		B	IC IC (TC40H000P)
65	VHiDAN601//-1	DS	AH		B	IC IC (DAN601)
66	VHiUPC339C/-1	DY	AK		B	IC IC (UPC339C)
67	VHiUPD444C-1/	FP	AV		B	IC IC (UPD444C)
68	VHiUPD7801175	GK	BA		B	IC IC (UPD7801175)
69	VRD-ST2EY101J	DA	AA		C	テイコウ Resistor (1/4W 100Ω ±5%)
70	VRD-ST2EY102J	DB	AA		C	テイコウ Resistor (1/4W 1KΩ ±5%)
71	VRD-ST2EY103J	DA	AA		C	テイコウ Resistor (1/4W 10KΩ ±5%)
72	VRD-ST2EY104J	DA	AA		C	テイコウ Resistor (1/4W 100KΩ ±5%)
73	VRD-ST2EY221J	DA	AA		C	テイコウ Resistor (1/4W 220Ω ±5%)
74	VRD-ST2EY222J	DA	AA		C	テイコウ Resistor (1/4W 2.2KΩ ±5%)
75	VRD-ST2EY223J	DA	AA		C	テイコウ Resistor (1/4W 22KΩ ±5%)
76	VRD-SU2EY330J	DA	AA		C	テイコウ Resistor (1/4W 33Ω ±5%)
77	VRD-ST2EY331J	DA	AA		C	テイコウ Resistor (1/4W 330Ω ±5%)
78	VRD-ST2EY332J	DA	AA		C	テイコウ Resistor (1/4W 3.3KΩ ±5%)
80	VRD-ST2EY472J	DA	AA		C	テイコウ Resistor (1/4W 4.7KΩ ±5%)
81	VRD-ST2EY561J	DA	AA		C	テイコウ Resistor (1/4W 560Ω ±5%)
82	VRD-ST2EY562J	DB	AA		C	テイコウ Resistor (1/4W 5.6KΩ ±5%)
83	VRD-ST2EY1R0G	DA	AA		C	テイコウ Resistor (1/4W 1.0Ω ±2%)
84	VRD-ST2EY105J	DA	AA		C	テイコウ Resistor (1/4W 1.0MΩ ±5%)
85	VRD-SU2EY114G	DA	AA		C	テイコウ Resistor (1/4W 110KΩ ±2%)

1 メイン基板 (MAIN PWB) ZX-400

NO.	PARTS CODE	PRICE RANK Ja	PRICE RANK Ex	NEW MARK	PART RANK	DESCRIPTION
86	VRD-ST2EY152J	DA	AA		C	テイコウ Resistor (1/4W 1.5KΩ ±5%)
87	VRD-ST2EY153G	DA	AA		C	テイコウ Resistor (1/4W 15KΩ ±2%)
88	VRD-SU2EY154G	DA	AA		C	テイコウ Resistor (1/4W 150KΩ ±2%)
89	VRD-SU2EY204G	DA	AA		C	テイコウ Resistor (1/4W 200KΩ ±2%)
90	VRD-SU2EY222G	DA	AA		C	テイコウ Resistor (1/4W 2.2KΩ ±2%)
91	VRD-SU2EY223G	DA	AA		C	テイコウ Resistor (1/4W 22KΩ ±2%)
92	VRD-SU2EY242G	DA	AA		C	テイコウ Resistor (1/4W 2.4KΩ ±2%)
93	VRD-SU2EY273G	DA	AA		C	テイコウ Resistor (1/4W 27KΩ ±2%)
94	VRD-SU2EY332G	DA	AA		C	テイコウ Resistor (1/4W 3.3KΩ ±2%)
95	VRD-SU2EY334J	DA	AA		C	テイコウ Resistor (1/4W 33KΩ ±5%)
96	VRD-SU2EY392G	DA	AA		C	テイコウ Resistor (1/4W 3.9KΩ ±2%)
97	VRD-SU2EY432G	DA	AA		C	テイコウ Resistor (1/4W 4.3KΩ ±2%)
98	VRD-SU2EY472G	DA	AA		C	テイコウ Resistor (1/4W 4.7KΩ ±2%)
99	VRD-ST2EY561G	DA	AA		C	テイコウ Resistor (1/4W 560Ω ±2%)
100	VRD-ST2EY563J	DA	AA		C	テイコウ Resistor (1/4W 56KΩ ±5%)
101	VRD-SU2EY752G	DA	AA		C	テイコウ Resistor (1/4W 7.5KΩ ±2%)
102	VRD-SU2EY821G	DA	AA		C	テイコウ Resistor (1/4W 820Ω ±2%)
103	VRD-SU2EY913G	DA	AA		C	テイコウ Resistor (1/4W 91KΩ ±2%)
105	VS2SA675-//-1	DH	AD		B	トランジスター Transistor (2SA675)
106	VS2SD1031-/-1	DS	AG		B	トランジスター Transistor (2SD1031)
107	XCPSD20P06000	DA	AA		C	ビス Screw (2×6)
108	XBPSD30P06000	DA	AA		C	ビス Screw (3×6)
109	VHiM5L2732K-1	FZ	AY		B	IC IC EP-ROM(Non-programmed)
110	VHiM2732A56-1	GR	BC		B	IC IC EP-ROM(Programmed)ROM0
111	VHiM58735-071	FP	AV		B	IC IC (M58735)
112	VHiM2732332-C	GR	BC		B	IC IC Table ROM(ROM2)wheel No.3
	VHiM2732333-C	GR	BC		B	IC IC Table ROM(ROM2)wheel No.4
	VHiM2732334-C	GR	BC		B	IC IC Table ROM(ROM2)wheel No.5
	VHiM2732335-C	GR	BC		B	IC IC Table ROM(ROM2)wheel No.6
	VHiM2732336-C	GR	BC		B	IC IC Table ROM(ROM2)wheel No.1
113	VHi8041A-104P	FG	AT		B	IC IC (8041A-104P)
114	VHi8041A-090P	FG	AT		B	IC IC (8041A-090P)
115	VRD-SU2EY103G	DA	AA		C	テイコウ Resistor (1/4W 10KΩ ±2%)
116	VRD-SU2EY121J	DB	AA		C	テイコウ Resistor (1/4W 120Ω ±5%)
117	VRD-SU2EY512J	DB	AA		C	テイコウ Resistor (1/4W 5.1KΩ ±5%)
118	PSHEZ5018BCZZ	DC	AB		C	マイラーシート Sheet
119	VCKYPU1HB101K	DA	AA		C	コンデンサー Capacitor (50WV 100pF)
120	VHDEK14////-1	DK	AE		B	ダイオード Diode (EK14)
121	VRD-ST2EY000J	DA	AA		C	テイコウ Resistor (1/4W 0Ω ±5%)
122	VRD-SU2EY153J	DB	AA		C	テイコウ Resistor (1/4W 15KΩ ±5%)
123	VRS-PT3DB100K	DL	AC		C	テイコウ Resistor (2W 10Ω ±10%)
124	VS2SC945///-1	DH	AD		B	トランジスター Transistor (2SC945)
125	XWHSD30-05080	DA	AA		C	ワッシャ Washer (3HW)

2 メイン基板 (MAIN PWB) ZX-500

NO.	PARTS CODE	PRICE RANK Ja	PRICE RANK Ex	NEW MARK	PART RANK	DESCRIPTION
1	LBSHZ5012BCZZ	DB	AB		C	ブッシング Bushing
2	PRDAF5011BCZZ	DX	AK		C	ホウネツバン Heat sink
3	QCNCM5033BCZZ	DX	AH	N	C	コネクター Connector (26pin) [CN-1]
4	QCNCM5034BCZZ	DF	AD		C	コネクター Connector (6pin) [CN-2]
5	QCNCM5035BCZZ	DC	AB		B	コネクター Connector (2pin)(RED) [CN-3]
6	QCNCM5053BCZZ	DC	AB		B	コネクター Connector (2pin) [CN-5]
7	QCNCM5037BCZZ	DC	AB		B	コネクター Connector (2pin) [CN-4,16]
8	QCNCM5038BCZZ	DC	AC		B	コネクター Connector (3pin) [CN-6]
9	QCNCM5039BCZZ	DM	AF		C	コネクター Connector (9pin) [CN-9]
10	QCNCM5040BCZZ	EC	AL		C	コネクター Connector (40pin) [CN-8]
11	QCNCM5041BCZZ	DT	AG		C	コネクター Connector (26pin) [CN-9]
13	QSOCZ6424ACZZ	DK	AE	N	C	ICソケット IC soket (24pin)
15	RALMB5010BCZZ	DQ	AF		C	ブザー Buzzer
16	RC-E1H227BCZU	DE	AC		C	コンデンサー Capacitor (50WV 220μF)
17	RC-F1J105BCZZ	ED	AM		C	コンデンサー Capacitor (63WV 1μF)
18	RC-F1J224BCZZ	EB	AL		C	コンデンサー Capacitor (63WV 0.22μF)
19	RC-F1J334BCZZ	EC	AL		C	コンデンサー Capacitor (63WV 0.33μF)
20	RCRSQ5011BCZZ	DX	AH		C	クリスタル Crystal oscillator (6MHz)
21	RCRSQ5012BCZZ	EN	AP		C	クリスタル Crystal oscillator (2MHz)
22	RVR-M5310QCN1	DY	AK		C	ボリウム Variable resistor (5KΩ)
23	UBATN2318RCZZ	EY	AR		B	バッテリー Battery
24	VCEAAU1HW105Q	DB	AB		C	コンデンサー Capacitor (50WV 1.0μF)
25	RVR-M5213QCN1	DX	AH		C	ボリウム Variable resistor (500Ω)
26	VCEAAU1HW475Q	DB	AB		C	コンデンサー Capacitor (50WV 4.7μF)
27	VCKYPU1HB102K	DA	AA		C	コンデンサー Capacitor (50WV 1000pF)
28	VCKYPU1HB221K	DA	AB		C	コンデンサー Capacitor (50WV 220pF)
29	VCKYPU1HB222K	DA	AA		C	コンデンサー Capacitor (50WV 2200pF)
31	VCKYPU1HF223Z	DB	AA		C	コンデンサー Capacitor (50WV 22000pF)
32	VCQYKU1HM102K	DB	AA		C	コンデンサー Capacitor (50WV 1000pF)

2 メイン基板 (MAIN PWB) ZX-500

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
33	VCQYKU1HM103K	DB	AB		C	コンデンサー	Capacitor (50WV 0.01μF)
34	VCQYKU1HM104K	DD	AB		C	コンデンサー	Capacitor (50WV 0.10μF)
35	VCSATU1CE226M	DL	AE		C	コンデンサー	Capacitor (16WV 22μF)
36	VCSATU1EE335M	DH	AD		C	コンデンサー	Capacitor (25WV 3.3μF)
38	VHDDS1588L1—1	DB	AD		B	ダイオード	Diode (1S1588L1)
39	VHDEU2//////—1	DF	AD		B	ダイオード	Diode (EU2)
40	VHiL290////—1	FK	AU		B	IC L290	IC L290
41	VHiL291////—1	FK	AU		B	IC L291	IC L291
42	VHiL292////—1	GK	BA		B	IC L292	IC L292
43	VHiL293////—1	FN	AV		B	IC	IC (L293)
44	VHiM5M5118P—1	GG	BA		B	IC	IC (M5M5118P)
45	VHiM51841P/—1	DP	AF		B	IC	IC (M51841P)
46	VHiM74LS00/—1	DL	AE		B	IC	IC (M74LS00)
47	VHiM74LS04/—1	DL	AE		B	IC	IC (M74LS04P)
48	VHiM74LS05/—1	DL	AE		B	IC	IC (M74LS05)
49	VHiM74LS08/—1	DL	AE		B	IC	IC (M74LS08)
50	VHiM74LS155—1	DX	AH		B	IC	IC (M74LS155P)
51	VHiM74LS273—1	EM	AP		B	IC	IC (M74LS273)
52	VHiM74LS32/—1	DL	AF		B	IC	IC (M74LS32P)
53	VHiM74LS51/—1	DH	AE		B	IC	IC (M74LS51)
54	VHiSN7400N/—1	DY	AG		B	IC	IC (SN7400N)
55	VHiSN7406N/—1	DS	AG		B	IC	IC (SN7406)
56	VHiTC40H000P1	DQ	AF		B	IC	IC (TC40H000P)
57	VHiUPC339C/—1	DY	AK		B	IC	IC (UPC339C)
58	VHiUPD7800G—1	HQ	BH		B	IC	IC (UPD7800G)
59	VHi8255A///—1	GD	AY		B	IC	IC (UPD8255A)
60	VRD—ST2EY101J	DA	AA		C	テイコウ	Resistor (1/4W 100Ω ±5%)
61	VRD—ST2EY102J	DB	AA		C	テイコウ	Resistor (1/4W 1KΩ ±5%)
62	VRD—ST2EY103J	DA	AA		C	テイコウ	Resistor (1/4W 10KΩ ±5%)
63	VRD—ST2EY104J	DA	AA		C	テイコウ	Resistor (1/4W 100KΩ ±5%)
64	VRD—SU2EY153J	DB	AA		C	テイコウ	Resistor (1/4W 15KΩ ±5%)
65	VRD—ST2EY221J	DA	AA		C	テイコウ	Resistor (1/4W 220Ω ±5%)
66	VRD—ST2EY222J	DA	AA		C	テイコウ	Resistor (1/4W 2.2KΩ ±5%)
67	VRD—ST2EY223J	DA	AA		C	テイコウ	Resistor (1/4W 22KΩ ±5%)
68	VRD—SU2EY330J	DA	AA		C	テイコウ	Resistor (1/4W 33Ω ±5%)
69	VRD—ST2EY331J	DA	AA		C	テイコウ	Resistor (1/4W 330Ω ±5%)
70	VRD—ST2EY332J	DA	AA		C	テイコウ	Resistor (1/4W 3.3KΩ ±5%)
71	VRD—ST2EY471J	DA	AA		C	テイコウ	Resistor (1/4W 470Ω ±5%)
72	VRD—ST2EY472J	DA	AA		C	テイコウ	Resistor (1/4W 4.7KΩ ±5%)
73	VRD—SU2EY103G	DA	AA		C	テイコウ	Resistor (1/4W 10KΩ ±2%)
74	VRD—ST2EY562J	DB	AA		C	テイコウ	Resistor (1/4W 5.6KΩ ±5%)
75	VRD—ST2EY1R0G	DA	AA		C	テイコウ	Resistor (1/4W 1.0Ω ±2%)
76	VRD—ST2EY105J	DA	AA		C	テイコウ	Resistor (1/4W 1.0MΩ ±5%)
77	VRD—SU2EY114G	DA	AA		C	テイコウ	Resistor (1/4W 110KΩ ±2%)
78	VRD—ST2EY152J	DA	AA		C	テイコウ	Resistor (1/4W 1.5KΩ ±5%)
79	VRD—ST2EY153G	DA	AA		C	テイコウ	Resistor (1/4W 15KΩ ±2%)
80	VRD—SU2EY154G	DA	AA		C	テイコウ	Resistor (1/4W 150KΩ ±2%)
81	VRD—SU2EY204G	DA	AA		C	テイコウ	Resistor (1/4W 200KΩ ±2%)
82	VRD—SU2EY222G	DA	AA		C	テイコウ	Resistor (1/4W 2.2KΩ ±2%)
83	VRD—SU2EY223G	DA	AA		C	テイコウ	Resistor (1/4W 22KΩ ±2%)
84	VRD—SU2EY242G	DA	AA		C	テイコウ	Resistor (1/4W 2.4KΩ ±2%)
85	VRD—SU2EY273G	DA	AA		C	テイコウ	Resistor (1/4W 27KΩ ±2%)
86	VRD—SU2EY332G	DA	AA		C	テイコウ	Resistor (1/4W 3.3KΩ ±2%)
87	VRD—SU2EY334J	DA	AA		C	テイコウ	Resistor (1/4W 33KΩ ±5%)
88	VRD—SU2EY392G	DA	AA		C	テイコウ	Resistor (1/4W 3.9KΩ ±2%)
89	VRD—SU2EY472G	DA	AA		C	テイコウ	Resistor (1/4W 4.7KΩ ±2%)
90	VRD—ST2EY561G	DA	AA		C	テイコウ	Resistor (1/4W 560Ω ±2%)
91	VRD—ST2EY563J	DA	AA		C	テイコウ	Resistor (1/4W 56KΩ ±5%)
92	VRD—SU2EY752G	DA	AA		C	テイコウ	Resistor (1/4W 7.5KΩ ±2%)
93	VRD—SU2EY912J	DA	AA		C	テイコウ	Resistor (1/4W 9.1KΩ ±5%)
94	VRD—SU2EY821G	DA	AA		C	テイコウ	Resistor (1/4W 820Ω ±2%)
95	VRD—SU2EY821J	DA	AA		C	テイコウ	Resistor (1/4W 820Ω ±5%)
96	VRD—SU2EY913G	DA	AA		C	テイコウ	Resistor (1/4W 91KΩ ±2%)
97	VRD—SU2EY432J	DA	AA		C	テイコウ	Resistor (1/4W 4.3KΩ ±5%)
98	VS2SA675—//—1	DH	AD		B	トランジスター	Transistor (2SA675)
99	VS2SC945///—1	DH	AD		B	トランジスター	Transistor (2SC945)
100	VS2SD1031—/—1	DS	AG		B	トランジスター	Transistor (2SD1031)
101	XCPSD20P06000	DA	AA		C	ビス	Screw (2×6)
102	XBPSD30P06000	DA	AA		C	ビス	Screw (3×6)
104	VHiM5L2732K—1	FZ	AY		B	IC	IC (M5L2732K)
105	VHiM2732A58—1	GR	BC		B	IC	IC EPROM(Programmed)ROM0
106	VHiM2732A59—1	GR	BC		B	IC	IC EPROM(Programmed)ROM1
107	VHiM2732349—C	GR	BC		B	IC	IC EPROM(Programmed)ROM2
108	VHiM2732A47—1	GR	BC		B	IC	IC EPROM(Programmed)ROM3
109	VHiM2732332—C	GR	BC		B	IC	IC Table ROM(ROM4)wheel №3
	VHiM2732333—C	GR	BC		B	IC	IC Table ROM(ROM4)wheel №4
	VHiM2732334—C	GR	BC		B	IC	IC Table ROM(ROM4)wheel №5
	VHiM2732335—C	GR	BC		B	IC	IC Table ROM(ROM4)wheel №6
	VHiM2732336—C	GR	BC		B	IC	IC Table ROM(ROM4)wheel №1
110	VHiDAN601//—1	DS	AH		B	IC	IC (DAN601)

2 メイン基板 (MAIN PWB) ZX-500

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION		
		Ja	Ex					
111	VHiM74LS138−1	DY	AK		B	IC	IC (M74LS138P)	
112	VHiM74LS74/−1	DQ	AG		B	IC	IC (M74LS74P)	
113	VHiSN7405N/−1	DY	AG		B	IC	IC (SN7405N/−1)	
114	VHi8041A−104P	FG	AT		B	IC	IC (8041A−104P)	
115	VHi8041A−090P	FG	AT		B	IC	IC (8041A−090P)	
116	VRS−PT3DB100K	DL	AC		C	テイコウ	Resistor (2W 10Ω ±10%)	
117	VRD−ST2EY561J	DA	AA		C	テイコウ	Resistor (1/4W 560Ω ±5%)	
118	VCQPKU2AA152G	DF	AD		C	コンデンサ	Capacitor (100WV 1500PF)	
119	VCQPKU2AA153G	DL	AF		C	コンデンサー	Capacitor (100WV 0.015μF)	
120	VCQPKU2AA333G	DG	AD		C	コンデンサ	Capacitor (100WV 0.033μF)	
121	VCQPKU2AA392J	DD	AC		C	コンデンサー	Capacitor (100WV 3900PF)	
122	VCQPKU2AA473G	DS	AE		C	コンデンサー	Capacitor (100WV 0.047μF)	
123	VCQPKU2AA682G	DF	AD		C	コンデンサー	Capacitor (100WV 6800PF)	
124	VCQYKU1HM473K	DB	AB		C	コンデンサー	Capacitor (50WV 0.047μF)	
125	VHERD5.1E4/−1	DH	AC		B	ツェナーダイオード	Zener diode (RD5.1E4)	
126	QCNCM5048BCZZ	DC	AC		B	コネクター	Connector (2pin)	[CN−15]
131	QSW−Z2057SCZZ	ES	AQ		B	デップ スイッチ	Dip switch (8point)	
132	VCKYPU1HB331K	DA	AA		C	コンデンサー	Capacitor (50WV 330PF)	
133	VRD−SU2EY121J	DB	AA		C	テイコウ	Resistor (1/4W 120Ω ±5%)	
134	VRD−SU2EY512J	DB	AA		C	テイコウ	Resistor (1/4W 5.1KΩ ±5%)	
135	PSHEZ5018BCZZ	DC	AB		C	マイラーシート	Sheet	
136	VHDEK14////−1	DK	AE		B	ダイオード	Diode (EK14)	
137	VRD−ST2EY000J	DA	AA		C	テイコウ	Resistor (1/4W 0Ω ±5%)	
138	QCNCM5052BCZZ	DF	AD		C	コネクター	Connector (6pin)	[CN−11]
139	QCNCM6834RC2J	DT	AG		C	コネクター	Connector (20pin)	[CN−10]

3 1次側電源基板 (PRIMARY PS PWB) 120V

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION		
		Ja	Ex					
⚠ 1	QFS−B4451CCZZ	DF	AE		A	ヒューズ	Fuse	[F1]
⚠ 2	QFSHB1003CCZZ	DS	AB		C	ヒューズホルダー	Fuse holder	
⚠ 3	QPWBF5017BCZZ	DP	AF	N	C	NF,SW 120Vキバン	PWB w/o parts	
⚠ 4	QSW−C1071CCZZ	DY	AK		B	シーソースイッチ	Seesaw switch	
⚠ 5	RC−FZ6030RCZZ	DS	AH		C	コンデンサー	Capacitor	[C1,C2]
⚠ 6	RC−KZ006URCZZ	DH	AD		C	コンデンサー	Capacitor	[C3,C4]
⚠ 7	RCiLC0013RCZZ	DY	AK		C	ラインフィルター	Coil	[L1]
⚠ 8	VRD−ST2HY394J	DB	AB		C	テイコウ	Resistor (1/2W 390KΩ ±5%)	[R1]
⚠ 9	QCNW−5101BCZZ	DD	AC		C	アースワイヤー	Earth wire	

4 1次側電源基板 (PRIMARY PS PWB) 220V

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION		
		Ja	Ex					
⚠ 1	QFS−C1018CCZZ	DF	AE		A	ヒューズ	Fuse	[F1]
⚠ 2	QFSHA0006HCZZ	DA	AB		C	ヒューズホルダー	Fuse holder	
⚠ 3	QPWBF5018BCZZ	DP	AF	N	C	NF,SW 220Vキバン	PWB w/o parts	
⚠ 4	QSW−C7230QCZZ	EA	AK	N	B	シーソースイッチ	Seesaw switch	
⚠ 5	RCiLC0013RCZZ	DY	AK		C	ラインフィルター	Coil	[L1]
⚠ 6	VCE9HE2EP104K	DY	AK		C	コンデンサー	Capacitor (250WV 0.10μF)	[C1,C2]
⚠ 7	VCH9HE2EP472M	DQ	AF		C	コンデンサー	Capacitor (250WV 4700PF)	[C3,C4]
⚠ 8	VRD−ST2HY394J	DB	AB		C	テイコウ	Resistor (1/2W 390KΩ ±5%)	[R1]
⚠ 9	QCNW−5101BCZZ	DD	AC		C	アースワイヤー	Earth wire	
⚠ 10	QTANN6630RCZZ	DM	AE		C	ブロック ターミナル	Block terminal	

5 1次側電源基板 (PRIMARY PS PWB) 240V

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION		
		Ja	Ex					
⚠ 1	QFS−D4341CCZZ	DF	AE		A	ヒューズ	Fuse	[F1]
⚠ 2	QFSHA0006HCZZ	DA	AB		C	ヒューズホルダー	Fuse holder	
⚠ 3	QPWBF5019BCZZ	DP	AF	N	C	NF,SW 240Vキバン	PWB w/o parts	
⚠ 4	QSW−C7230QCZZ	EA	AK	N	B	シーソースイッチ	Seesaw switch	
⚠ 5	RCiLC0013RCZZ	DY	AK		C	ラインフィルター	Coil	[L1]
⚠ 6	VCE9HE2EP104K	DY	AK		C	コンデンサー	Capacitor (250WV 0.1μF)	[C1,C2]
⚠ 7	VCH9HE2EP472M	DQ	AF		C	コンデンサー	Capacitor (250WV 4700PF)	[C3,C4]
⚠ 8	VRD−ST2HY394J	DB	AB		C	テイコウ	Resistor (1/2W 390KΩ ±5%)	[R1]
⚠ 9	QCNW−5101BCZZ	DD	AC		C	アースワイヤー	Earth wire	
⚠ 10	QTANN6630RCZZ	DM	AE		C	ブロックターミナル	Block terminal	

6 1次側電源基板 (PRIMARY PS PWB) 100V

	NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION		
			Ja	Ex					
⚠	1	QFS—A0032HCZZ	DB	AB		A	ヒューズ	Fuse	[F1]
⚠	2	QFSHB1003CCZZ	DS	AB		C	ヒューズホルダー	Fuse holder	
⚠	3	QPWBF5017BCZZ	DP	AF	N	C	NF,SW 120Vキバン	PWB w/o parts	
⚠	4	QSW—C1019CCN1	DY	AK		B	シーソースイッチ	Seesaw switch	
⚠	5	RC—FZ6030RCZZ	DS	AH		C	コンデンサー	Capacitor (125WV 0.1μF)	[C1,C2]
⚠	6	RC—KZ006URCZZ	DH	AD		C	コンデンサー	Capacitor	[C3,C4]
⚠	7	RCiLC0013RCZZ	DY	AK		C	ラインフィルター	Coil	[L1]
⚠	8	VRD—ST2HY394J	DB	AB		C	テイコウ	Resistor (1/2W 390KΩ ±5%)	[R1]
⚠	9	QCNW—5101BCZZ	DD	AC		C	アースワイヤー	Earth wire	
⚠	10	QTANN6630RCZZ	DM	AE		C	ブロック ターミナル	Block terminal	

7 2次側電源基板 (SECONDARY PS PWB)

	NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION		
			Ja	Ex					
	1	LANGF2437SCZZ	DL	AE		C	TRオサエイタ	PWB supporter	
	2	PGUMS2042SCZZ	DR	AG		C	TRオサエゴム	Rubber,transistor	
	3	PRDAF5013BCZZ	HN	BG	N	C	ホウネツバン	Heat sink,side	
	4	PRDAF5014BCZZ	FP	AV	N	C	ホウネツテンバン	Heat sink,upper	
	5	PZETM2002SCZZ	DL	AA		C	マイラー	Insulator	
	6	QCNCM5044BCZZ	DC	AB		C	コネクター	Connector	[CN1]
	7	QCNCM5045BCZZ	DD	AC		C	コネクター	Connector	[CN2]
	8	QCNW—5074BCZZ	EJ	AN	N	C	9Pケーブル	Cable,9P	
⚠	9	QFS—A1010CCZZ	DD	AC		A	ヒューズ	Fuse (100V,120V)	[F1,F2,F3]
⚠		QFS—C1025CCZZ	DJ	AF		A	ヒューズ	Fuse (220V,240V)	[F1,F2,F3]
	10	QFSHA1002CCZZ	DB	AB		C	ヒューズホルダー	Fuse holder	
	11	RC—E1C477BCZU	DD	AC		C	コンデンサー	Capacitor (16WV 470μF)	[C4]
	12	RC—E1E107BCZU	DC	AB		C	コンデンサー	Capacitor (25WV 100μF)	[C1,C2]
	13	RC—E1E109BCZU	EF	AM		C	コンデンサー	Capacitor (25WV 10,000μF)	[C8]
	14	RC—E1E477BCZU	DF	AD		C	コンデンサー	Capacitor (25WV 470μF)	[C6]
	16	RC—E1H688BCZU	EP	AP		C	コンデンサー	Capacitor (50WV 6800μF)	[C13,C15]
	17	RC—E1V338BCZU	DX	AH		C	コンデンサー	Capacitor (35WV 3300μF)	[C10,C12]
	18	RR—W3HR62BCZZ	DK	AE		C	テイコウ	Resistor (5WV 62Ω)	[R15]
	19	RVR—M1319QCZZ	DH	AD		C	ボリウム	Variable resistor	[R13]
	20	RVR—M5214QCZZ	DF	AD		C	ボリウム	Variable resistor	[R12]
	21	VCQYKU1HM104K	DD	AB		C	コンデンサー	Capacitor (50WV 0.1μF)	[C3,C7,C11,C14]
	22	VCQYKU1HM473K	DB	AB		C	コンデンサー	Capacitor (50WV 0.047μF)	[C5]
	23	VHDDS1588L2—1	DB	AD		B	ダイオード	Diode DS1588L2 (DS1588L2)	[D5,6,9,10,12]
	24	VHDS5VB10F/—1	DY	AK		B	ダイオード	Diode (S5VB10F)	[D14]
	25	VHDS5VB20F/—1	EA	AK		B	ダイオード	Diode (S5VB20F)	[D15]
	26	VHDW09C////—1	DD	AC		B	ダイオード	Diode (W09C)	[D1~4,7,8,11,13]
	27	VHERD2.7EB2—1	DB	AB		B	ツェナーダイオード	Zener diode (RD2.7EB)	[ZD3]
	28	VHERD27EB//—1	DD	AB		B	ツェナーダイオード	Zener diode (RD27EB)	[ZD5,ZD6]
	29	VHERD4.3EB2—1	DB	AB		B	ツェナーダイオード	Zener diode (RD4.3EB)	[ZD1,ZD4]
	30	VHERD8.2EB2—1	DE	AC		B	ツェナーダイオード	Zener diode (RD8.2EB)	[ZD2]
	32	VHiUPC271C/—1	EE	AM		B	IC	IC (UPC271)	[IC1]
	33	VHiUPC7812H—1	DY	AK		B	IC	IC (UPC7812H)	[IC2]
	34	VHiUPC7912H—1	EG	AM		B	IC	IC (UPC7912H)	[IC3]
	36	VRD—ST2EY101J	DA	AA		C	テイコウ	Resistor (1/4W 100Ω ±5%)	[R10]
	37	VRD—ST2EY102J	DB	AA		C	テイコウ	Resistor (1/4W 1KΩ ±5%)	[R16]
	38	VRD—ST2EY103J	DA	AA		C	テイコウ	Resistor (1/4W 10KΩ ±5%)	[R18]
	39	VRD—ST2EY122J	DA	AA		C	テイコウ	Resistor (1/4W 1.2KΩ ±5%)	[R3,R17]
	40	VRD—ST2EY153J	DA	AA		C	テイコウ	Resistor (1/4W 15KΩ ±5%)	[R6]
	42	VRD—ST2EY222J	DA	AA		C	テイコウ	Resistor (1/4W 2.2KΩ ±5%)	[R2]
	43	VRD—ST2EY271J	DA	AA		C	テイコウ	Resistor (1/4W 270Ω ±5%)	[R7]
	44	VRD—ST2EY272J	DA	AA		C	テイコウ	Resistor (1/4W 2.7KΩ ±5%)	[R4]
	45	VRD—ST2EY332J	DA	AA		C	テイコウ	Resistor (1/4W 3.3KΩ ±5%)	[R5]
	46	VRD—ST2EY391J	DB	AA		C	テイコウ	Resistor (1/4W 390Ω ±5%)	[R9]
	47	VRD—ST2EY472J	DA	AA		C	テイコウ	Resistor (1/4W 4.7KΩ ±5%)	[R14,R20]
	48	VRD—ST2EY561J	DA	AA		C	テイコウ	Resistor (1/4W 560Ω ±5%)	[R11]
	49	VRD—ST2EY562J	DB	AA		C	テイコウ	Resistor (1/4W 5.6KΩ ±5%)	[R21]
	50	VRS—PT3AB272J	DB	AA		C	テイコウ	Resistor (1W 2.7KΩ ±5%)	[R8]
	52	VRS—PT3LB681J	DD	AC		C	テイコウ	Resistor (3.0W 680Ω ±5%)	[R23,R24]
	54	VS2SB744—Q/—1	DH	AE		B	トランジスター	Transistor (2SB744—Q)	[Q10]
	55	VS2SB849—Q/—1	EE	AM		B	トランジスター	Transistor (2SB849—Q)	[Q11]
	56	VS2SC945—Q/—1	DB	AB		B	トランジスター	Transistor (2SC945—Q)	[Q1,Q4~Q6,Q9]
	57	VS2SD1110—Q—1	EC	AL		B	トランジスター	Transistor (2SD1110—Q)	[Q8,Q13]
	58	VS2SD560///—1	EG	AM		B	トランジスター	Transistor (2SD560)	[Q2]
	59	VS2SD794—Q/—1	BH	AE		B	トランジスター	Transistor (2SD794—Q)	[Q3,Q12]
	60	XBPSD30P06K00	DA	AA		C	ビス	Screw (3×6K)	
	61	XBPSD30P08K00	DA	AA		C	ビス	Screw (3×8K)	
	62	XBPSD30P16K00	DA	AA		C	ビス	Screw (3×16K)	
	63	QCNW—5100BCZZ	DE	AC	N	C	アースワイヤー	Earth wire	
	64	QLUGP0001WCZZ	DA	AA		C	ラグ タンシ	Terminal	

8 ディスプレイ基板 (DISPLAY PWB)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION		
		Ja	Ex					
1	LBSHZ1001SCZZ	DB	AB		C	ブッシング	Bushing	
2	LBSHZ2001SCZZ	DB	AA		C	ブッシング	Bushing	
3	LBSHZ5012HCZZ	DB	AB		C	ブッシング	Bushing	
4	PCUSS5011BCZZ	DB	AB	N	C	クッション	Cushion	
5	QCNW—5072BCZZ	FC	AS	N	C	ディスプレイ ケーブル	Cable,display	
6	QSOCZ6424ACZZ	DK	AE	N	C	IC ソケット	IC socket (24pin)	
7	RCRSQ5010BCZZ	EA	AK	N	B	クリスタル	Crystal oscillator	[X1]
9	VCCCPU1HH150J	DA	AA		C	コンデンサー	Capacitor (50WV 15PF)	[C10,C11]
10	VCEAAU1HW106Q	DB	AC		C	コンデンサー	Capacitor (50WV 10μF)	[C3]
11	VCEAAU2AW226Q	DD	AC		C	コンデンサー	Capacitor (100WV 22μF)	[C7,C8]
12	VCKYPU1HB103K	DB	AA		C	コンデンサー	Capacitor (50WV 0.01μF)	[C4]
13	VCKYPU1HB471K	DA	AA		C	コンデンサー	Capacitor (50WV 470PF)	[C9]
14	VCKYPU1HF223Z	DB	AA		C	コンデンサー	Capacitor (50WV 0.022μF)	[C2,C13~21,5,6]
15	VCSATU1CE226M	DL	AE		C	コンデンサー	Capacitor (16WV 22μF)	[C1]
16	VHDDS1588L2—1	DB	AD		B	ダイオード	Diode (DS1588L2)	[D3,D4]
17	VHDW09C////—1	DD	AC		B	ダイオード	Diode (W09C)	[D1,D2]
⚠ 18	RTRNP5010BCZZ	EL	AN	N	B	デンゲントランス	Power transformer	
	VHERD8.2EB1—1	DD	AC		B	ツェナーダイオード	Zener diode (RD8.2EB1)	[ZD1,ZD2]
19	VHiLB1290//—1	EG	AM		B	IC	IC LB1290	[1B,1D,1F,1H,1J,2A,2L,3A,3K,3L,4K,5K]
20	VHiM5L8039P11	FW	AX		B	IC	IC (M5L8039P11)	[1N]
21	VHiM74LS05/—1	DL	AE		B	IC	IC (M74LS05P)	[4M]
22	VHiM74LS164—1	EG	AN		B	IC	IC M74LS164P	[1A,1C,1E,1G,1I,1K,1L,2K,3M,4A,4L,5L]
23	VHiM74LS244—1	EE	AM		B	IC	IC (M74LS244P)	[2N]
24	VHiM74LS273—1	EM	AP		B	IC	IC (M74LS273P)	[5N]
25	VRD—ST2EY102J	DB	AA		C	テイコウ	Resistor (1/4W 1KΩ ±5%)	[R10,R8,R13,R15]
26	VRD—ST2EY104J	DA	AA		C	テイコウ	Resistor (1/4W 100KΩ ±5%)	[R17]
27	VRD—ST2EY223J	DA	AA		C	テイコウ	Resistor (1/4W 22KΩ ±5%)	[R16]
28	VRD—ST2EY472J	DA	AA		C	テイコウ	Resistor (1/4W 4.7KΩ ±5%)	[R14,R12,R11,R1]
29	VRD—ST2EY562J	DB	AA		C	テイコウ	Resistor (1/4W 5.6KΩ ±5%)	[R4,R6]
30	VRD—ST2EY182J	DA	AA		C	テイコウ	Resistor (1/4W 1.8KΩ ±5%)	[R5]
31	VRD—ST2EY560J	DA	AA		C	テイコウ	Resistor (1/4W 56Ω ±5%)	[R2]
32	VRD—ST2EY821J	DB	AA		C	テイコウ	Resistor (1/4W 820Ω ±5%)	[R3]
33	VS2SC1515KC—1	DQ	AE		B	トランジスター	Transistor (2SC1515KC)	[Q4,Q5]
34	VS2SC2334—/—1	EC	AL		B	トランジスター	Transistor (2SC2334)	[Q1]
35	VS2SC945///—1	DH	AD		B	トランジスター	Transistor (2SC945)	[Q3]
36	VVK32SD42Z/—1	MJ	BQ	N	B	ヒョウジカン	Display tube (K32SD42Z)	
37	XBPSD30P24000	DA	AA		C	ビス	Screw (3×24)	
38	VHi2732A300—F	GV	AZ		B	IC	IC EPROM (non—Programmed)	[4N]
39	VHi2732/A01—1	HA	BE	N	B	IC	IC EPROM (Programmed)	
40	VCKYPU1HB101K	DA	AA		C	コンデンサー	Capacitor (50WV 100PF)	[C31]
41	VCKYPU1HB102K	DA	AA		C	コンデンサー	Capacitor (50WV 1000PF)	[C33,C12]
42	VCKYPU1HB331K	DA	AA		C	コンデンサー	Capacitor (50WV 330PF)	[C30,C32]
43	VRD—ST2EY681J	DA	AA		C	テイコウ	Resistor (1/4W 680Ω ±5%)	[R9]

9 オプションメモリー基板 (OPTION MEMORY PWB)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION		
		Ja	Ex					
1	LBSHC5011BCZZ	DC	AB	N	C	ブッシング	Bushing	
2	QCNCM6766RC0C	DP	AF		B	コネクター	Connector (3pin)	[SW1]
3	QCNCM6766RC0B	DL	AF		B	コネクター	Connector (2pin)	[SW2,SW3]
4	QCNCW1252CC1F	DQ	AF		C	コネクター	Connector (16pin)	[CN13]
5	QCNCW5051BCZZ	DR	AF	N	C	コネクター	Connector (20pin)	[CN14]
6	QCNCW6766RC0B	DL	AF		B	コネクター	Connector (2pin)	
7	QPWBN5022BCZZ	FZ	AY		C	オプションメモリーキバン	Option memory PWB w/o parts	
8	VCKYPU1HF223Z	DB	AA		C	コンデンサー	Capacitor (50WV 0.022μF)	[C2,C4~CN14]
9	VCSATU1AE226M	DH	AD		C	コンデンサー	Capacitor (10WV 22μF)	[C1,C3]
10	VHDDS1588L1—1	DB	AD		B	ダイオード DS1588L1	Diode DS1588L1	[D1~D3]
11	VHiM5M5118P—1	GG	BA		B	IC M5M5118P	IC M5M5118P	[2A~2D,3A~3D]
12	VHiM74LS04/—1	DL	AE		B	IC M74LS04P	IC M74LS04P	[1B]
13	VHiM74LS08/—1	DL	AE		B	IC M74LS08P	IC M74LS08P	[1C]
14	VHiM74LS38/—1	DJ	AE		B	IC M74LS38P	IC M74LS38P	[1A]
15	VHiTC40H000P1	DQ	AF		B	IC TC40H000P	IC TC40H000P	[1D]
16	VRD—ST2EY102J	DB	AA		C	テイコウ	Resistor (1/4W 1KΩ ±5%)	[R2,R5]
17	VRD—ST2EY103J	DA	AA		C	テイコウ	Resistor (1/4W 10KΩ ±5%)	[R4]
18	VRD—ST2EY222J	DA	AA		C	テイコウ	Resistor (1/4W 2.2KΩ ±5%)	[R3]
19	VRD—ST2EY331J	DA	AA		C	テイコウ	Resistor (1/4W 330Ω ±5%)	[R1]
20	UBATN2316RCZZ	EW	AR		B	バッテリー	Battery	
21	VRD—ST2EY104J	DA	AA		C	テイコウ	Resistor (1/4W 100KΩ ±5%)	
22	VRD—ST2EY271J	DA	AA		C	テイコウ	Resistor (1/4W 270Ω ±5%)	
23	LBSHZ5012BCZZ	DB	AB		C	ブッシング	Bushing	
24	LX—BZ5028BCZZ	DA	AA		C	ビス	Screw	
25	PSHEP5014BCZZ	DA	AA		C	シート	Sheet	
26	PSHEP5015BCZZ	DA	AA		C	シート	Sheet	
27	TiNSZ5057BCZZ	DG	AD		D	トリアツカイセツメイショ	Instruction book	

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PARTS CODE	NO.	PRICE R.		NEW	P/R	
		Ja.	Ex.			
【L】						
LANGF2437SCZZ	7- 1	DL	AE		C	
LBSHC5011BCZZ	9- 1	DC	AB	N	C	
LBSHZ1001SCZZ	8- 1	DB	AB		C	
LBSHZ2001SCZZ	8- 2	DB	AA		C	
LBSHZ5012BCZZ	1- 1	DB	AB		C	
〃	2- 1	DB	AB		C	
〃	9- 23	DB	AB		C	
LBSHZ5012HCZZ	8- 3	DB	AB		C	
LX—BZ5028BCZZ	9- 24	DA	AA		C	
【P】						
PCUSS5011BCZZ	8- 4	DB	AB	N	C	
PGUMS2042SCZZ	7- 2	DR	AG		C	
PRDAF5011BCZZ	1- 2	DX	AK		C	
〃	2- 2	DX	AK		C	
PRDAF5013BCZZ	7- 3	HN	BG	N	C	
PRDAF5014BCZZ	7- 4	FP	AV	N	C	
PSHEP5014BCZZ	9- 25	DA	AA		C	
PSHEP5015BCZZ	9- 26	DA	AA		C	
PSHEZ5018BCZZ	1- 118	DC	AB		C	
〃	2- 135	DC	AB		C	
PZETM2002SCZZ	7- 5	DL	AA		C	
【Q】						
QCNCM5033BCZZ	1- 3	DX	AH	N	C	
〃	2- 3	DX	AH	N	C	
QCNCM5034BCZZ	1- 4	DF	AD		C	
〃	2- 4	DF	AD		C	
QCNCM5035BCZZ	1- 5	DC	AB		B	
〃	2- 5	DC	AB		B	
QCNCM5037BCZZ	1- 7	DC	AB		B	
〃	2- 7	DC	AB		B	
QCNCM5038BCZZ	1- 8	DC	AC		B	
〃	2- 8	DC	AC		B	
QCNCM5039BCZZ	1- 9	DM	AF		C	
〃	2- 9	DM	AF		C	
QCNCM5040BCZZ	1- 10	EC	AL		C	
〃	2- 10	EC	AL		C	
QCNCM5041BCZZ	1- 11	DT	AG		C	
〃	2- 11	DT	AG		C	
QCNCM5044BCZZ	7- 6	DC	AB		C	
QCNCM5045BCZZ	7- 7	DD	AC		C	
QCNCM5048BCZZ	2- 126	DC	AC		B	
QCNCM5052BCZZ	1- 12	DF	AD		C	
〃	2- 138	DF	AD		C	
QCNCM5053BCZZ	1- 13	DC	AB		B	
〃	2- 6	DC	AB		B	
QCNCM6766RC0B	9- 3	DL	AF		B	
QCNCM6766RC0C	9- 2	DP	AF		B	
QCNCM6834RC2J	2- 139	DT	AG		C	
QCNCW1252CC1F	9- 4	DQ	AF		C	
QCNCW5051BCZZ	9- 5	DR	AF	N	C	
QCNCW6766RC0B	9- 6	DL	AF		B	
QCNW—5072BCZZ	8- 5	FC	AS	N	C	
QCNW—5074BCZZ	7- 8	EJ	AN	N	C	
QCNW—5100BCZZ	7- 63	DE	AC	N	C	
QCNW—5101BCZZ	3- 9	DD	AC		C	
〃	4- 9	DD	AC		C	
〃	5- 9	DD	AC		C	
〃	6- 9	DD	AC		C	
QFS—A0032HCZZ	6- 1	DB	AB		A	
QFS—A1010CCZZ	7- 9	DD	AC		A	
QFS—B4451CCZZ	3- 1	DF	AE		A	
QFS—C1018CCZZ	4- 1	DF	AE		A	
QFS—C1025CCZZ	7- 9	DJ	AF		A	
QFS—D4341CCZZ	5- 1	DF	AE		A	
QFSHA0006HCZZ	4- 2	DA	AB		C	
〃	5- 2	DA	AB		C	
QFSHA1002CCZZ	7- 10	DB	AB		C	
QFSHB1003CCZZ	3- 2	DS	AB		C	
〃	6- 2	DS	AB		C	
QLUGP0001WCZZ	7- 64	DA	AA		C	
QPWBF5017BCZZ	3- 3	DP	AF	N	C	
〃	6- 3	DP	AF	N	C	
QPWBF5018BCZZ	4- 3	DP	AF	N	C	
QPWBF5019BCZZ	5- 3	DP	AF	N	C	
QPWBN5022BCZZ	9- 7	FZ	AY		C	
QSOCZ6424ACZZ	1- 15	DK	AE	N	C	
〃	2- 13	DK	AE	N	C	
〃	8- 6	DK	AE	N	C	
QSW—C1019CCN1	6- 4	DY	AK		B	
QSW—C1071CCZZ	3- 4	DY	AK		B	
QSW—C7230QCZZ	4- 4	EA	AK	N	B	
〃	5- 4	EA	AK	N	B	
QSW—Z2057SCZZ	1- 17	ES	AQ		B	
〃	2- 131	ES	AQ		B	
QTANN6630RCZZ	4- 10	DM	AE		C	
〃	5- 10	DM	AE		C	
〃	6- 10	DM	AE		C	
【R】						
RALMB5010BCZZ	1- 18	DQ	AF		C	
〃	2- 15	DQ	AF		C	
RC—E1C477BCZU	7- 11	DD	AC		C	
RC—E1E107BCZU	7- 12	DC	AB		C	
RC—E1E109BCZU	7- 13	EF	AM		C	
RC—E1E477BCZU	7- 14	DF	AD		C	
RC—E1H227BCZU	1- 19	DE	AC		C	
〃	2- 16	DE	AC		C	
RC—E1H688BCZU	7- 16	EP	AP		C	
RC—E1V338BCZU	7- 17	DX	AH		C	
RC—FZ6030RCZZ	3- 5	DS	AH		C	
〃	6- 5	DS	AH		C	
RC—F1J105BCZZ	2- 17	ED	AM		C	
RC—F1J224BCZZ	1- 20	EB	AL		C	
〃	2- 18	EB	AL		C	
RC—F1J334BCZZ	1- 21	EC	AL		C	
〃	2- 19	EC	AL		C	
RC—KZ006URCZZ	3- 6	DH	AD		C	
〃	6- 6	DH	AD		C	
RCILC0013RCZZ	3- 7	DY	AK		C	
〃	4- 5	DY	AK		C	
〃	5- 5	DY	AK		C	
〃	6- 7	DY	AK		C	
RCRSQ5010BCZZ	8- 7	EA	AK	N	B	
RCRSQ5011BCZZ	1- 22	DX	AH		C	
〃	2- 20	DX	AH		C	
RCRSQ5012BCZZ	2- 21	EN	AP		C	
RR—W3HR62BCZZ	7- 18	DK	AE		C	
RTRNP5010BCZZ	8- 18	EL	AN	N	B	
RVR—M1319QCZZ	7- 19	DH	AD		C	
RVR—M5213QCN1	1- 23	DX	AH		C	
〃	2- 25	DX	AH		C	
RVR—M5214QCZZ	7- 20	DF	AD		C	
RVR—M5310QCN1	1- 24	DY	AK		C	
〃	2- 22	DY	AK		C	
【T】						
TINSZ5057BCZZ	9- 27	DG	AD		D	
【U】						
UBATN2316RCZZ	9- 20	EW	AR		B	
UBATN2318RCZZ	1- 25	EY	AR		B	
〃	2- 23	EY	AR		B	
【V】						
VCCCPU1HH150J	8- 9	DA	AA		C	
VCEAAU1HW105Q	1- 26	DB	AB		C	
〃	2- 24	DB	AB		C	
VCEAAU1HW106Q	8- 10	DB	AC		C	
VCEAAU1HW475Q	1- 27	DB	AB		C	
〃	2- 26	DB	AB		C	
VCEAAU2AW226Q	8- 11	DD	AC		C	
VCE9HE2EP104K	4- 6	DY	AK		C	
〃	5- 6	DY	AK		C	
VCH9HE2EP472M	4- 7	DQ	AF		C	
〃	5- 7	DQ	AF		C	
VCKYPU1HB101K	1- 119	DA	AA		C	
〃	8- 40	DA	AA		C	
VCKYPU1HB102K	1- 28	DA	AA		C	
〃	2- 27	DA	AA		C	
〃	8- 41	DA	AA		C	
VCKYPU1HB103K	8- 12	DB	AA		C	
VCKYPU1HB221K	1- 29	DA	AB		C	
〃	2- 28	DA	AB		C	
VCKYPU1HB222K	1- 30	DA	AA		C	
〃	2- 29	DA	AA		C	
VCKYPU1HB331K	1- 31	DA	AA		C	
〃	2- 132	DA	AA		C	
〃	8- 42	DA	AA		C	
VCKYPU1HB471K	8- 13	DA	AA		C	
VCKYPU1HF223Z	1- 32	DB	AA		C	
〃	2- 31	DB	AA		C	
〃	8- 14	DB	AA		C	
〃	9- 8	DB	AA		C	

PARTS CODE	NO.	PRICE R.		NEW	P/R	
		Ja.	Ex.			
VCQPKU2AA152G	1- 33	DF	AD		C	
〃	2- 118	DF	AD		C	
VCQPKU2AA153G	1- 34	DL	AF		C	
〃	2- 119	DL	AF		C	
VCQPKU2AA333G	1- 35	DG	AD		C	
〃	2- 120	DG	AD		C	
VCQPKU2AA392J	1- 36	DD	AC		C	
〃	2- 121	DD	AC		C	
VCQPKU2AA473G	1- 37	DS	AE		C	
〃	2- 122	DS	AE		C	
VCQPKU2AA682G	1- 38	DF	AD		C	
〃	2- 123	DF	AD		C	
VCQYKU1HM102K	1- 40	DB	AA		C	
〃	2- 32	DB	AA		C	
VCQYKU1HM103K	1- 41	DB	AB		C	
〃	2- 33	DB	AB		C	
VCQYKU1HM104K	1- 42	DD	AB		C	
〃	2- 34	DD	AB		C	
〃	7- 21	DD	AB		C	
VCQYKU1HM473K	1- 39	DB	AB		C	
〃	2- 124	DB	AB		C	
〃	7- 22	DB	AB		C	
VCSATU1AE226M	9- 9	DH	AD		C	
VCSATU1CE226M	1- 43	DL	AE		C	
〃	2- 35	DL	AE		C	
〃	8- 15	DL	AE		C	
VCSATU1EE335M	1- 44	DH	AD		C	
〃	2- 36	DH	AD		C	
VHDDS1588L1-1	1- 46	DB	AD		B	
〃	2- 38	DB	AD		B	
〃	9- 10	DB	AD		B	
VHDDS1588L2-1	7- 23	DB	AD		B	
〃	8- 16	DB	AD		B	
VHDEK14////-1	1- 120	DK	AE		B	
〃	2- 136	DK	AE		B	
VHDEU2/////-1	1- 47	DF	AD		B	
〃	2- 39	DF	AD		B	
VHDS5VB10F/-1	7- 24	DY	AK		B	
VHDS5VB20F/-1	7- 25	EA	AK		B	
VHDW09C////-1	7- 26	DD	AC		B	
〃	8- 17	DD	AC		B	
VHERD2.7EB2-1	7- 27	DB	AB		B	
VHERD27EB//-1	7- 28	DD	AB		B	
VHERD4.3EB2-1	7- 29	DB	AB		B	
VHERD5.1E4/-1	1- 48	DH	AC		B	
〃	2- 125	DH	AC		B	
VHERD8.2EB1-1	8- 18	DD	AC		B	
VHERD8.2EB2-1	7- 30	DE	AC		B	
VHIDAN601//-1	1- 65	DS	AH		B	
〃	2- 110	DS	AH		B	
VHILB1290//-1	8- 19	EG	AM		B	
VHIL290////-1	1- 49	FK	AU		B	
〃	2- 40	FK	AU		B	
VHIL291////-1	1- 50	FK	AU		B	
〃	2- 41	FK	AU		B	
VHIL292////-1	1- 51	GK	BA		B	
〃	2- 42	GK	BA		B	
VHIL293////-1	1- 52	FN	AV		B	
〃	2- 43	FN	AV		B	
VHIM2732A47-1	2- 108	GR	BC		B	
VHIM2732A56-1	1- 110	GR	BC		B	
VHIM2732A58-1	2- 105	GR	BC		B	
VHIM2732A59-1	2- 106	GR	BC		B	
VHIM2732332-C	1- 112	GR	BC		B	
〃	2- 109	GR	BC		B	
VHIM2732333-C	1- 112	GR	BC		B	
〃	2- 109	GR	BC		B	
VHIM2732334-C	1- 112	GR	BC		B	
〃	2- 109	GR	BC		B	
VHIM2732335-C	1- 112	GR	BC		B	
〃	2- 109	GR	BC		B	
VHIM2732336-C	1- 112	GR	BC		B	
〃	2- 109	GR	BC		B	
VHIM2732349-C	2- 107	GR	BC		B	
VHIM5L2732K-1	1- 109	FZ	AY		B	
〃	2- 104	FZ	AY		B	
VHIM5L8039P11	8- 20	FW	AX		B	
VHIM5M5118P-1	2- 44	GG	BA		B	
〃	9- 11	GG	BA		B	
VHIM51841P/-1	2- 45	DP	AF		B	

PARTS CODE	NO.	PRICE R.		NEW	P/R	
		Ja.	Ex.			
VHIM58735-071	1- 111	FP	AV		B	
VHIM74LS00/-1	1- 53	DL	AE		B	
〃	2- 46	DL	AE		B	
VHIM74LS04/-1	1- 54	DL	AE		B	
〃	2- 47	DL	AE		B	
〃	9- 12	DL	AE		B	
VHIM74LS05/-1	2- 48	DL	AE		B	
〃	8- 21	DL	AE		B	
VHIM74LS08/-1	1- 55	DL	AE		B	
〃	2- 49	DL	AE		B	
〃	9- 13	DL	AE		B	
VHIM74LS125-1	1- 56	DY	AH		B	
VHIM74LS138-1	2- 111	DY	AK		B	
VHIM74LS155-1	1- 57	DX	AH		B	
〃	2- 50	DX	AH		B	
VHIM74LS164-1	8- 22	EG	AN		B	
VHIM74LS175-1	1- 58	DS	AG		B	
VHIM74LS244-1	8- 23	EE	AM		B	
VHIM74LS273-1	1- 59	EM	AP		B	
〃	2- 51	EM	AP		B	
〃	8- 24	EM	AP		B	
VHIM74LS32/-1	1- 60	DL	AF		B	
〃	2- 52	DL	AF		B	
VHIM74LS38/-1	9- 14	DJ	AE		B	
VHIM74LS51/-1	2- 53	DH	AE		B	
VHIM74LS74/-1	1- 61	DQ	AG		B	
〃	2- 112	DQ	AG		B	
VHISN7400N/-1	2- 54	DY	AG		B	
VHISN7405N/-1	1- 62	DY	AG		B	
〃	2- 113	DY	AG		B	
VHISN7406N/-1	1- 63	DS	AG		B	
〃	2- 55	DS	AG		B	
VHITC40H000P1	1- 64	DQ	AF		B	
〃	2- 56	DQ	AF		B	
〃	9- 15	DQ	AF		B	
VHIUPC271C/-1	7- 32	EE	AM		B	
VHIUPC339C/-1	1- 66	DY	AK		B	
〃	2- 57	DY	AK		B	
VHIUPC7812H-1	7- 33	DY	AK		B	
VHIUPC7912H-1	7- 34	EG	AM		B	
VHIUPD444C-1/	1- 67	FP	AV		B	
VHIUPD7800G-1	2- 58	HQ	BH		B	
VHIUPD7801175	1- 68	GK	BA		B	
VHI2732/A01-1	8- 39	HA	BE	N	B	
VHI2732A300-F	8- 38	GV	AZ		B	
VHI8041A-090P	1- 114	FG	AT		B	
〃	2- 115	FG	AT		B	
VHI8041A-104P	1- 113	FG	AT		B	
〃	2- 114	FG	AT		B	
VHI8255A///-1	2- 59	GD	AY		B	
VRD-ST2EY000J	1- 121	DA	AA		C	
〃	2- 137	DA	AA		C	
VRD-ST2EY1R0G	1- 83	DA	AA		C	
〃	2- 75	DA	AA		C	
VRD-ST2EY101J	1- 69	DA	AA		C	
〃	2- 60	DA	AA		C	
〃	7- 36	DA	AA		C	
VRD-ST2EY102J	1- 70	DB	AA		C	
〃	2- 61	DB	AA		C	
〃	7- 37	DB	AA		C	
〃	8- 25	DB	AA		C	
〃	9- 16	DB	AA		C	
VRD-ST2EY103J	1- 71	DA	AA		C	
〃	2- 62	DA	AA		C	
〃	7- 38	DA	AA		C	
〃	9- 17	DA	AA		C	
VRD-ST2EY104J	1- 72	DA	AA		C	
〃	2- 63	DA	AA		C	
〃	8- 26	DA	AA		C	
〃	9- 21	DA	AA		C	
VRD-ST2EY105J	1- 84	DA	AA		C	
〃	2- 76	DA	AA		C	
VRD-ST2EY122J	7- 39	DA	AA		C	
VRD-ST2EY152J	1- 86	DA	AA		C	
〃	2- 78	DA	AA		C	
VRD-ST2EY153G	1- 87	DA	AA		C	
〃	2- 79	DA	AA		C	
VRD-ST2EY153J	7- 40	DA	AA		C	
VRD-ST2EY182J	8- 30	DA	AA		C	
VRD-ST2EY221J	1- 73	DA	AA		C	

ZX400/500

PARTS CODE	NO.	PRICE R.		NEW	P/R
		Ja.	Ex.		
VRD-ST2EY221J	2- 65	DA	AA		C
VRD-ST2EY222J	1- 74	DA	AA		C
〃	2- 66	DA	AA		C
〃	7- 42	DA	AA		C
〃	9- 18	DA	AA		C
VRD-ST2EY223J	1- 75	DA	AA		C
〃	2- 67	DA	AA		C
〃	8- 27	DA	AA		C
VRD-ST2EY271J	7- 43	DA	AA		C
〃	9- 22	DA	AA		C
VRD-ST2EY272J	7- 44	DA	AA		C
VRD-ST2EY331J	1- 77	DA	AA		C
〃	2- 69	DA	AA		C
〃	9- 19	DA	AA		C
VRD-ST2EY332J	1- 78	DA	AA		C
〃	2- 70	DA	AA		C
〃	7- 45	DA	AA		C
VRD-ST2EY391J	7- 46	DB	AA		C
VRD-ST2EY471J	2- 71	DA	AA		C
VRD-ST2EY472J	1- 80	DA	AA		C
〃	2- 72	DA	AA		C
〃	7- 47	DA	AA		C
〃	8- 28	DA	AA		C
VRD-ST2EY560J	8- 31	DA	AA		C
VRD-ST2EY561G	1- 99	DA	AA		C
〃	2- 90	DA	AA		C
VRD-ST2EY561J	1- 81	DA	AA		C
〃	2- 117	DA	AA		C
〃	7- 48	DA	AA		C
VRD-ST2EY562J	1- 82	DB	AA		C
〃	2- 74	DB	AA		C
〃	7- 49	DB	AA		C
〃	8- 29	DB	AA		C
VRD-ST2EY563J	1- 100	DA	AA		C
〃	2- 91	DA	AA		C
VRD-ST2EY681J	8- 43	DA	AA		C
VRD-ST2EY821J	8- 32	DB	AA		C
VRD-ST2HY394J	3- 8	DB	AB		C
〃	4- 8	DB	AB		C
〃	5- 8	DB	AB		C
〃	6- 8	DB	AB		C
VRD-SU2EY103G	1- 115	DA	AA		C
〃	2- 73	DA	AA		C
VRD-SU2EY114G	1- 85	DA	AA		C
〃	2- 77	DA	AA		C
VRD-SU2EY121J	1- 116	DB	AA		C
〃	2- 133	DB	AA		C
VRD-SU2EY153J	1- 122	DB	AA		C
〃	2- 64	DB	AA		C
VRD-SU2EY154G	1- 88	DA	AA		C
〃	2- 80	DA	AA		C
VRD-SU2EY204G	1- 89	DA	AA		C
〃	2- 81	DA	AA		C
VRD-SU2EY222G	1- 90	DA	AA		C
〃	2- 82	DA	AA		C
VRD-SU2EY223G	1- 91	DA	AA		C
〃	2- 83	DA	AA		C
VRD-SU2EY242G	1- 92	DA	AA		C
〃	2- 84	DA	AA		C
VRD-SU2EY273G	1- 93	DA	AA		C
〃	2- 85	DA	AA		C
VRD-SU2EY330J	1- 76	DA	AA		C
〃	2- 68	DA	AA		C
VRD-SU2EY332G	1- 94	DA	AA		C
〃	2- 86	DA	AA		C
VRD-SU2EY334J	1- 95	DA	AA		C
〃	2- 87	DA	AA		C
VRD-SU2EY392G	1- 96	DA	AA		C
〃	2- 88	DA	AA		C
VRD-SU2EY432G	1- 97	DA	AA		C
VRD-SU2EY432J	2- 97	DA	AA		C
VRD-SU2EY472G	1- 98	DA	AA		C
〃	2- 89	DA	AA		C
VRD-SU2EY512J	1- 117	DB	AA		C
〃	2- 134	DB	AA		C
VRD-SU2EY752G	1- 101	DA	AA		C
〃	2- 92	DA	AA		C
VRD-SU2EY821G	1- 102	DA	AA		C
〃	2- 94	DA	AA		C
VRD-SU2EY821J	2- 95	DA	AA		C

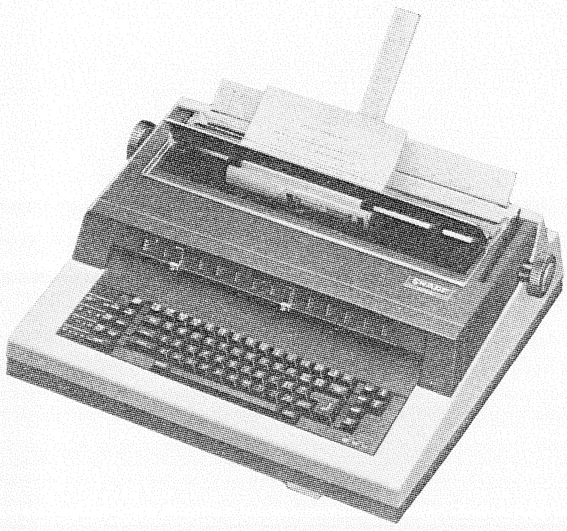
PARTS CODE	NO.	PRICE R.		NEW	P/R
		Ja.	Ex.		
VRD-SU2EY912J	2- 93	DA	AA		C
VRD-SU2EY913G	1- 103	DA	AA		C
〃	2- 96	DA	AA		C
VRS-PT3AB272J	7- 50	DB	AA		C
VRS-PT3DB100K	1- 123	DL	AC		C
〃	2- 116	DL	AC		C
VRS-PT3LB681J	7- 52	DD	AC		C
VS2SA675-//-1	1- 105	DH	AD		B
〃	2- 98	DH	AD		B
VS2SB744-Q/-1	7- 54	DH	AE		B
VS2SB849-Q/-1	7- 55	EE	AM		B
VS2SC1515KC-1	8- 33	DQ	AE		B
VS2SC2334-/-1	8- 34	EC	AL		B
VS2SC945-Q/-1	7- 56	DB	AB		B
VS2SC945///-1	1- 124	DH	AD		B
〃	2- 99	DH	AD		B
〃	8- 35	DH	AD		B
VS2SD1031-/-1	1- 106	DS	AG		B
〃	2- 100	DS	AG		B
VS2SD1110-Q-1	7- 57	EC	AL		B
VS2SD560///-1	7- 58	EG	AM		B
VS2SD794-Q/-1	7- 59	BH	AE		B
VVK32SD42Z/-1	8- 36	MJ	BQ	N	B
【X】					
XBPSD30P06K00	7- 60	DA	AA		C
XBPSD30P06000	1- 108	DA	AA		C
〃	2- 102	DA	AA		C
XBPSD30P08K00	7- 61	DA	AA		C
XBPSD30P16K00	7- 62	DA	AA		C
XBPSD30P24000	8- 37	DA	AA		C
XCPSD20P06000	1- 107	DA	AA		C
〃	2- 101	DA	AA		C
XWHSD30-05080	1- 125	DA	AA		C

ZX400 / 500

SHARP SERVICE MANUAL

SHAR-02878

Code: 00ZM094ETSM3A



ELECTRONIC TYPEWRITERS

No. 3

MODEL ZX-400/ZX-500

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SHARP CORPORATION

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1. Overview of the keyboard

Basically there are 2 types of keyboards for the ZX-400 and ZX-500, for a total of 4 different types. These 4 types are based on the full key model and can be classified into a 48-key (European export model) and 47-key (U.S.A. export model). A parts guide has been prepared for the different key tops as shown below.

(1) 48-key (European export model)

a) Full key : common
b) ZX-500 : exclusive
c) ZX-400 : exclusive
d) various destinations : exclusive

(2) 47-key (U.S.A. export model)

a) Full key : common
b) ZX-500 : exclusive
c) ZX-400 : exclusive
d) various destinations : exclusive

The parts of (1) and (2) can be purchased individually or as a set. Using the above and referring to the table on the next page, a keyboard can be modified for various export destinations.

2. Method of changing export destinations (refer to the next page)

(1) Changing within each group (A, B, C, D, . . .)

Each group can be divided into 8 destinations. The export destination can be changed within the same group and is set by changing the setting of the JK switch on the CPU board.

(Example) Changing a Finland model to a Norway model.

(FINLAND)

JK SWITCH SET UP							
1	0	0	0	0	1	X	X

→

(NORWAY)

JK SWITCH SET UP							
1	1	0	0	0	1	X	X

(2) Changing from the present destination group to another destination group.

(Example) Changing a group A Finland model to a group D, U.K. model. The modifications can be made by following the procedures below.

a) Change of setting of the JK switch on the CPU board as shown below.

(FINLAND)

JK SWITCH SET UP							
1	0	0	0	0	1	X	X

→

(U.K.)

JK SWITCH SET UP							
1	0	1	0	0	0	X	X

b) Replace the print wheel
There is a different print wheel for each group. Check the number printed on each print wheel and replace.
c) Replace ROM-2 (ZX-400)/ROM-4 (ZX-500)
d) Replace the key tops
Since the key tops and type faces, do not match after the print wheel is replaced, replace the key tops with ones prepared especially for the desired destination.
FINLAND exclusive → U.K. exclusive

These 4 steps thus complete the model change.

GROUP	COUNTRY OF DESTINATION		LAUGUAGE FOR MESSAGE	PRINT WHEEL NUMBER	ROM-2 (ZX-400) ROM-4 (ZX-500)	JK SWITCH SET UP							
						0	1	2	3	4	5	6	7
A	0	SWEDEN	SWEDISH	003	VHIM2732A06-1	0	0	0	0	0	1	X	X
	1	FINLAND	FINNISH			1	0	0	0	0	1	X	X
	2	DENMARK	DANISH			0	1	0	0	0	1	X	X
	3	NORWAY	NORWEGIAN			1	1	0	0	0	1	X	X
	4	ICELAND	(ICELANDIC)			0	0	1	0	0	1	X	X
	5												
	6												
	7												
B	0	FRANCE	FRENCH	004	VHIM2732A07-1	0	0	0	0	0	1	X	X
	1	BELGIUM	FRENCH			1	0	0	0	0	1	X	X
	2	ITALY	ITALIAN			0	1	0	0	0	1	X	X
	3	SPAIN	SPANISH			1	1	0	0	0	1	X	X
	4	PORTUGAL	PORTUGUES			0	0	1	0	0	1	X	X
	5												
	6												
	7												
C	0	U.S.A.·AUSTRALIA	ENGLISH	005	VHIM2732A08-1	0	0	0	0	0	0	X	X
	1	CANADA (F)	FRENCH			1	0	0	0	0	0	X	X
	2	CANADA (E)	ENGLISH			0	1	0	0	0	0	X	X
	3												
	4												
	5												
	6												
	7												
D	0			006	VHIM2732A09-1								
	1	GERMANY·AUSTRIA	GERMAN			1	0	0	0	0	1	X	X
	2	HOLLAND	DUTCH			0	1	0	0	0	1	X	X
	3	SWITZERLAND (G)	GERMAN			1	1	0	0	0	1	X	X
	4	SWITZERLAND (F)	FRENCH			0	0	1	0	0	1	X	X
	5	U.K.	ENGLISH			1	0	1	0	0	0	X	X
	6												
	7												
E	0	SOUTH AFRICA	ENGLISH	001		0	0	0	0	0	0	X	X
	1												

2. Parts Guide Configiration

This Parts Guide tabulates the parts of the ZX-400/500 keyboard into single parts and sets for each export destination. This guide is roughly divided into the following 2 sections.

2-1. Common parts of the keyboard

Contains single parts in the keyboard (except for the key tops) such as switches, diodes and ICs. There are 4 types of keyboards (without key tops) depending on the difference between ZX-400/500 and 47 key/48 key.

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION	PAGE NO.
		JPN	EXP			
1	00PZX400KBD47	–	BZ	E	ZX-400 Keyboard without key tops (47 keys)	
2	00PZX400KBD48	–	BZ	E	ZX-400 Keyboard without key tops (48 keys)	
3	00PZX400KBD47	–	BZ	E	ZX-500 Keyboard without key tops (47 keys)	
4	00PZX400KBD48	–	BZ	E	ZX-500 Keyboard without key tops (48 keys)	

2-2. Key tops for each export destination

The key tops are divided into 3 sections. The key tops that can be used in common and the key top supply method are shown in the table below. Key tops are supplied individually or as a set.

2-2-1. Key tops for Europe (except France)

a) Common parts

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION	PAGE NO.
		JPN	EXP			
1-1	00PZXKTP-EURO	TS	BX	E	Common key tops (ZX-400/500)	
1-2	00PZXKTP-500E	HE	BF	E	Common key tops exclusively for ZX-500	
1-3	00PZXKTP-400E	FP	AV	E	Common key tops exclusively for ZX-400	

b) Parts classified into export destinations (exclusive)

2-1	00PZXKTP-GERM	LX	BN	E	Key tops exclusively for Germany and Austria	
2-2	00PZXKTP-ICER	LX	BN	E	Key tops exclusively for Iceland	
2-3	00PZXKTP-SWED	LX	BN	E	Key tops exclusively for Sweden and Finland	
2-4	00PZXKTP-HOLL	LX	BN	E	Key tops exclusively for Holland	
2-5	00PZXKTP-DENM	LX	BN	E	Key tops exclusively for Denmark and Norway	
2-6	00PZXKTP-ITAL	LX	BN	E	Key tops exclusively for Italy	
2-7	00PZXKTP-SPAI	LX	BN	E	Key tops exclusively for Spain and Portugal	
2-8	00PZXKTP-BELG	LX	BN	E	Key tops exclusively for Belgium	
2-9	00PZXKTP-SWIT	LX	BN	E	Key tops exclusively for Switzerland (G)	
2-10	00PZXKTP-UK//	LX	BN	E	Key tops exclusively for U.K.	

2-2-2. Key tops for France

a) Common parts

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION	PAGE NO.
		JPN	EXP			
1-1	00PZXKTP-FCOM	TS	BX	E	Common key tops (ZX-400/500)	
1-2	00PZXKTP-500F	HE	BF	E	Common key tops exclusively for ZX-500	
1-3	00PZXKTP-400F	FP	AV	E	Common key tops exclusively for ZX-400	

b) Parts classified into export destinations (exclusive)

2-1	00PZXKTP-FRAN	LX	BN	E	Key tops exclusively for France	

2-2-3. Key tops for the U.S.A. and Canada

a) Common parts

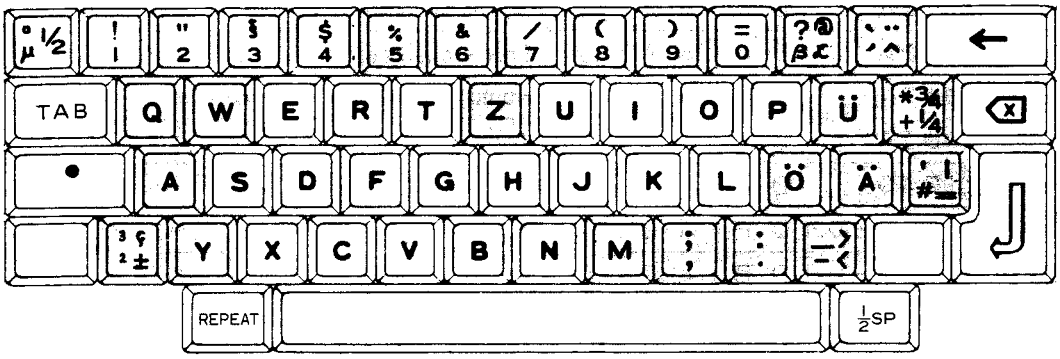
NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION	PAGE NO.
		JPN	EXP			
1-1	00PZXKTP-AMER	TW	BZ	E	Key tops (ZX-400/500)	
1-2	00PZXKTP-500A	HE	BF	E	Key tops exclusively for ZX-500	
1-3	00PZXKTP-400A	FP	AV	E	Key tops exclusively for ZX-400	

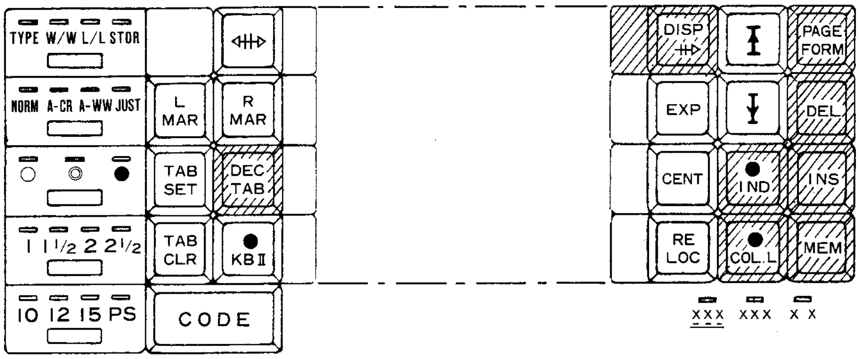
b) Parts classified into export destinations (exclusive)

2-1	00PZXKTP-USA	HY	BK	E	Key tops exclusively for U.S.A.	
2-2	00PZXKTP-CANA	HY	BK	E	Key tops exclusively for Canada	

The tables above show the parts code for the key top sets classified into export destinations.
As an example, to obtain the ZX-500 key tops for Germany, order the items below. Then the key tops sets shown in the diagram below will be supplied.

1. 00PZXKTP-EURO .... Common key tops for Europe (key tops not diagonally shaded or cross-hatched)
2. 00PZXKTP-500E .... Key tops exclusively for the ZX-500 for Europe (diagonally shaded key tops)
3. 00PZXKTP-GERM .... Key tops exclusively for Germany (cross-hatched key tops)


TAB
Q W E R T Z U I O P Ü
A S D F G H J K L Ö Ä
Y X C V B N M
REPEAT
½SP

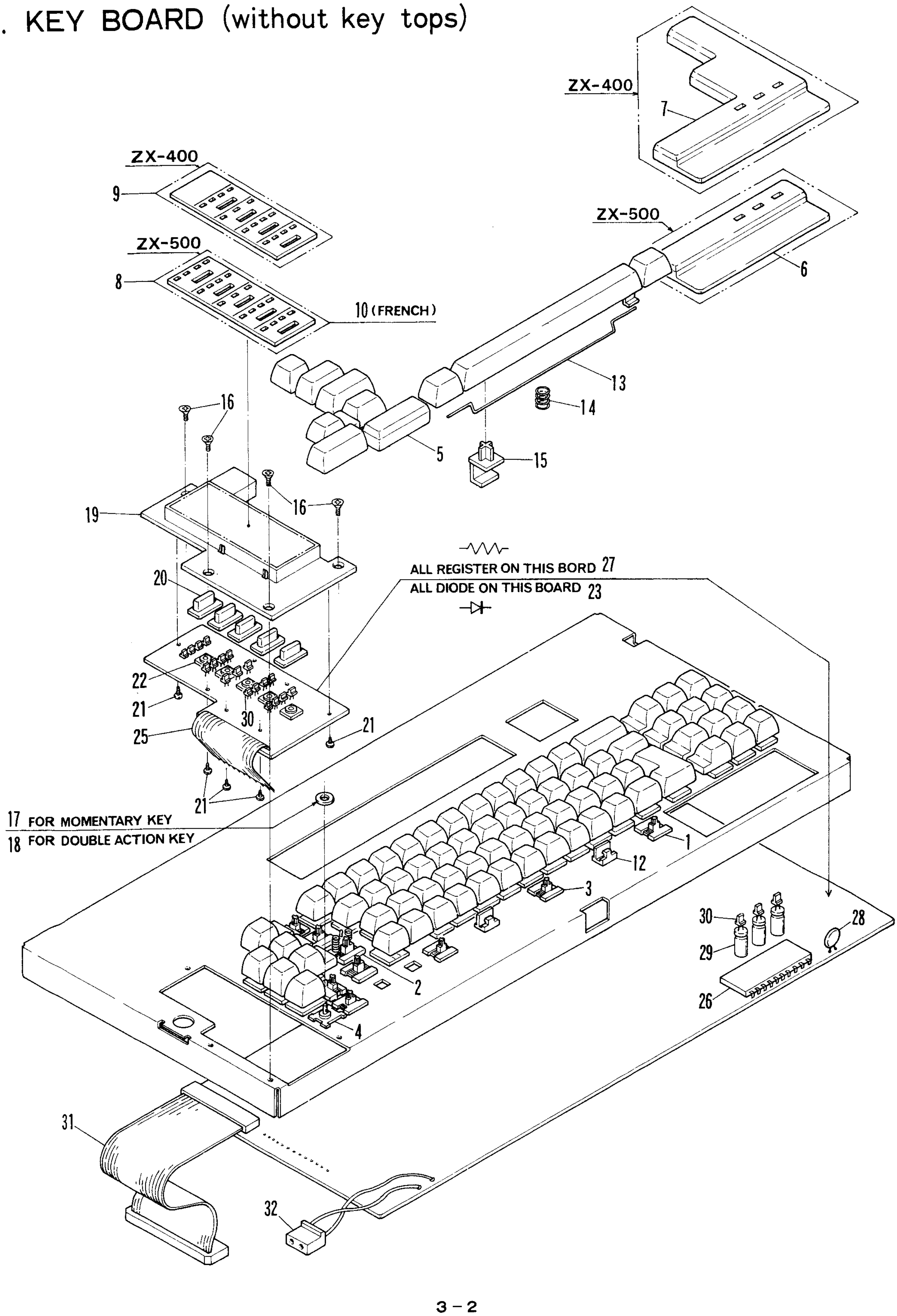

TYPE W/W L/L STOR
NORM A-CR A-WW JUST
1 1½ 2 2½
10 12 15 PS
L MAR
R MAR
TAB SET
DEC TAB
TAB CLR
KB II
CODE
DISP
PAGE FORM
EXP
DEL
CENT
IND
INS
RE LOC
COL.L
MEM
XXX XXX X X

When single key tops within the key top set are required, refer to the page noted in the tables above and look for the parts code of the desired key top. Further, a key layout for each destination is shown above the parts list for single key tops. The key tops in the key layout which are cross-hatched can be found in a separate list on another page.

3. KEY BOARD (without key tops)

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION	
		JPN	EXP			
1	00PKFF10901−Z	D Q	A F	B	Switch	スイッチ
2	00PKFF11901−Z	E W	A R	B	Switch with LED	スイッチ (LED付)
3	00PKFF14902−Z	E N	A P	B	Switch (Double action)	スイッチ (ダブルアクション)
4	00P16KF001A//	D B	A B	C	Guide pin	ガイドピン
5	00P03KF006A//	D J	A E	C	Face plate ZX-400/500 (G)	フェイス プレート
6	00P03KF007A//	D W	A H	C	Face plate ZX-500 (G)	フェイス プレート
7	00P03KF008A//	D Z	A K	C	Face plate ZX-400 (G)	フェイス プレート
8	00P03KF009A//	D Z	A K	C	Face plate ZX-500 (G)	フェイス プレート
9	00P03KF010A//	D Z	A K	C	Face plate ZX-400 (G)	フェイス プレート
10	00P03KF012A//	D Z	A K	C	Face plate ZX-500 (French)	フェイス プレート
11	————					
12	00P19KF002A//	D C	A B	C	Lever stopper	軸受
13	00P21KF004A//	D Q	A F	C	Lever	レバー (駆動棒)
14	00P27KF003A//	D A	A A	C	Spring	スプリング
15	00PCM50411A//	D C	A B	C	Lever holder	レバーホルダー
16	00P2A071060//	D A	A A	C	Screw M3×6	皿ネジ M3×6
17	00PCK42602A//	D A	A A	C	Shock absorber	緩衝ゴム
18	00PCH12602A//	D A	A A	C	Shock absorber	緩衝ゴム
19	00P02KF017A//	D W	A H	C	Housing base, Face plate	枠
20	00P38KF007A//	D B	A B	C	Knob	ツマミ
21	00P3A021040//	D A	A A	C	Screw M2.3	タッピンネジ
22	00PKHG10905−Z	D F	A D	C	Tact switch	タクトスイッチ
23	VHDDS1588L1−1	D B	A D	C	Diode DS1588L1	ダイオード DS1588L1
24	————					
25	00P29KF011A//	E C	A L	C	Cable,	フラットケーブル
26	VHiSN74154N−1	E R	A R	B	i. C, SN74154N	i. C, SN74154N
27	VRD−ST2EY271J	D A	A A	C	Resistor, Carbon film 1/4W 270ohm	炭素皮膜抵抗 1/4W 270Ω
28	VCSATU1CE226M	D L	A E	C	Capacitor, tantaulum 22μF 16V	タンタルコンデンサ 22μF 16V
29	00P24KF011A//	D B	A B	C	Spacer, LED	LED用スペーサ
30	00P4D07184A//	D J	A E	B	LED	LED
31	00PB3KF005A//	G C	A Z	C	Cable	フラットケーブル
32	00PB3KF007A//	D V	A H	C	Connector, 2P	コネクター 2P
33	00PZX400KBD47		B Z	E	ZX-400 Key board without key tops (47keys)	キーボード キートップ無し (47キー)
34	00PZX400KBD48		B Z	E	ZX-400 Key board without key tops (48keys)	キーボード キートップ無し (48キー)
35	00PZX500KBD47		B Z	E	ZX-500 Key board without key tops (47keys)	キーボード キートップ無し (47キー)
36	00PZX500KBD48		B Z	E	ZX-500 Key board without key tops (48keys)	キーボード キートップ無し (48キー)

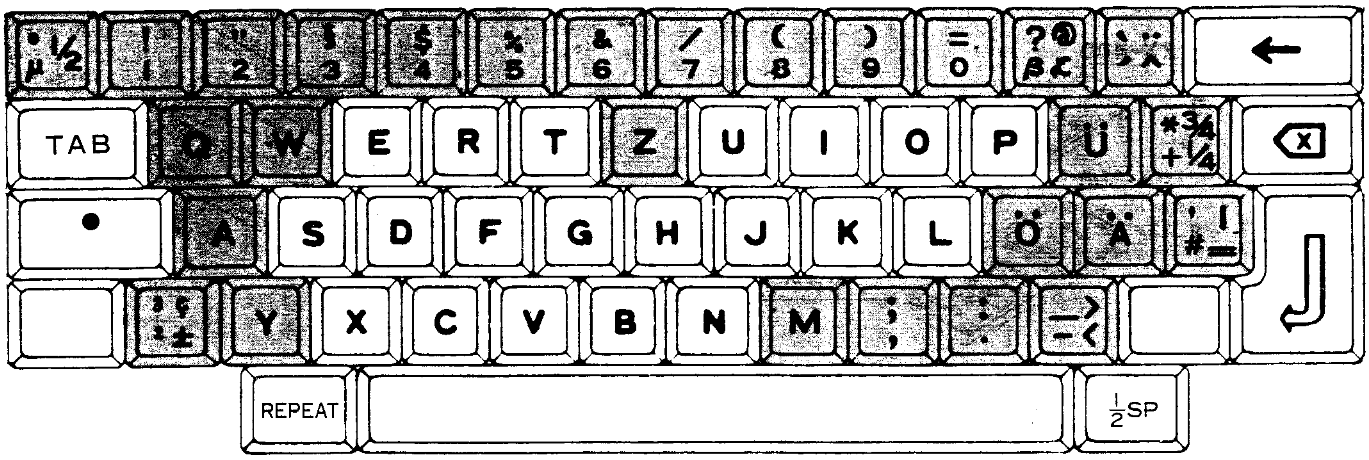
3. KEY BOARD (without key tops)


ZX-400
7
ZX-400
9
ZX-500
8
10 (FRENCH)
ZX-500
6
13
14
5
15
16
16
16
16
19
ALL REGISTER ON THIS BORD 27
ALL DIODE ON THIS BOARD 23
20
22
21
30
21
25
21
17 FOR MOMENTARY KEY
18 FOR DOUBLE ACTION KEY
1
12
3
30
28
29
26
2
4
31
32

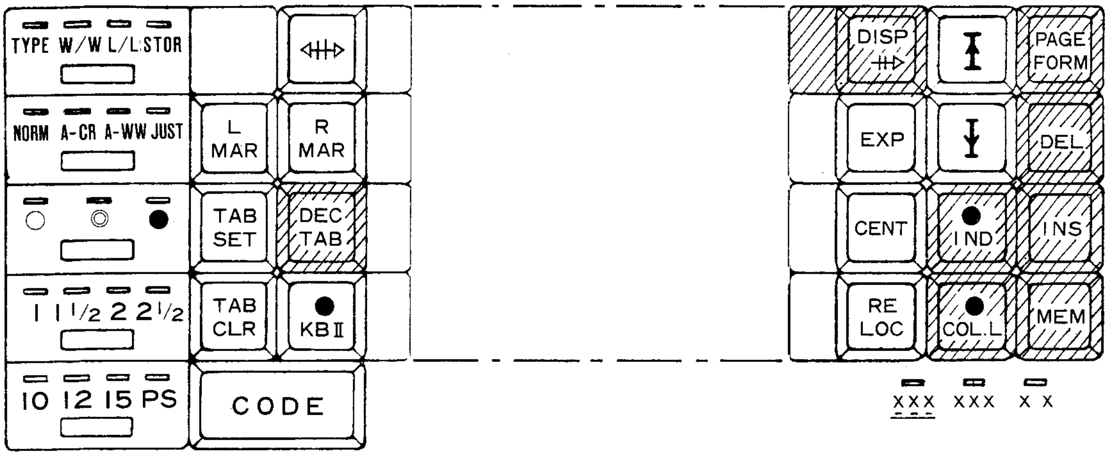
4. KEY TOPS

4-1 KEY TOPS FOR EUROPE

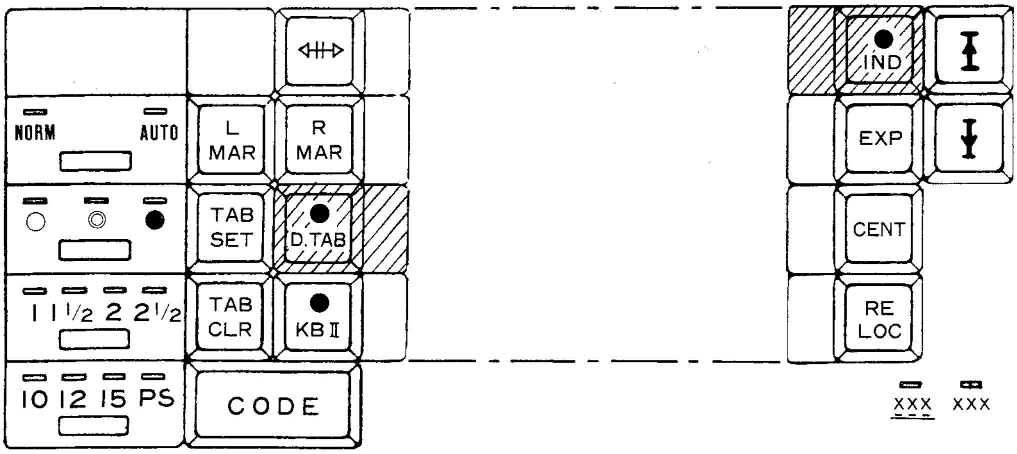
4-1-1 COMMON KEY TOPS (EUROPE)


TAB
REPEAT
½SP
Q W E R T Z U I O P Ü
A S D F G H J K L Ö Ä
Y X C V B N M

4-1-2 EXCLUSIVE KEY TOPS (ZX-500)


TYPE W/W L/L STOR
NORM A-CR A-WW JUST
1 1½ 2 2½
10 12 15 PS
L MAR
R MAR
TAB SET
DEC TAB
TAB CLR
KB II
CODE
DISP
PAGE FORM
EXP
DEL
CENT
IND
INS
RE LOC
COL.L
MEM
XXX XXX X X

4-1-3 EXCLUSIVE KEY TOPS (ZX-400)


NORM AUTO
1 1½ 2 2½
10 12 15 PS
L MAR
R MAR
TAB SET
D.TAB
TAB CLR
KB II
CODE
IND
EXP
CENT
RE LOC
XXX XXX X X

4-1-4 COMMON KEY TOPS (EUROPE)···00PZXKTP-EURO

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
1	00P85C8L79010	E A	A K	C	Key top	キートップ	P	
	00P85C8L79X02	E A	A K	C	Key top	キートップ	P	and —
2	00P85C9L79002	E A	A K	C	Key top	キートップ	S	
3	00P85C9L79003	E A	A K	C	Key top	キートップ	D	
4	00P85C9L79004	E A	A K	C	Key top	キートップ	F	
5	00P85C9L79005	E A	A K	C	Key top	キートップ	G	
6	00P85C9L79006	E A	A K	C	Key top	キートップ	H	
7	00P85C9L79007	E A	A K	C	Key top	キートップ	J	
8	00P85C9L79008	E A	A K	C	Key top	キートップ	K	
9	00P85C9L79009	E A	A K	C	Key top	キートップ	L	
10	00P85C9L79020	E A	A K	C	Key top	キートップ	L MAR	
11	00P85C9L79032	E A	A K	C	Key top	キートップ	TAB CLR	
12	00P85C9L79029	E A	A K	C	Key top	キートップ	⤒	
13	00P85C9L79030	E A	A K	C	Key top	キートップ	⤓	
14	00P85B1L79002	E A	A K	C	Key top	キートップ	X	
15	00P85B1L79003	E A	A K	C	Key top	キートップ	C	
16	00P85B1L79004	E A	A K	C	Key top	キートップ	V	
17	00P85B1L79005	E A	A K	C	Key top	キートップ	B	
18	00P85B1L79006	E A	A K	C	Key top	キートップ	N	
19	00P83A9L79001	E R	A Q	C	Key top	キートップ	TAB	
20	00P83A9L79002	E R	A Q	C	Key top	キートップ	⌫	and ☒
21	00P83F1L79005	E R	A Q	C	Key top	キートップ	◁‖▷	
22	00P83E9L79003	E R	A Q	C	Key top	キートップ	CENT	
23	00P83E9L79004	E R	A Q	C	Key top	キートップ	RE LOC	
24	00P84B3L79001	E R	A Q	C	Key top	キートップ	REPEAT	
25	00P84B3L79002	E R	A Q	C	Key top	キートップ	½SP	
26	00P81C5L79001	E R	A Q	C	Key top	キートップ	CODE	
27	00P81B4L79001	E R	A Q	C	Key top	キートップ	←	
28	00P81L3L79001	E R	A Q	C	Key top	キートップ	↲	
29	00P85C8L79003	E R	A Q	C	Key top	キートップ	E	and CL XXX
30	00P85C8L79004	E R	A Q	C	Key top	キートップ	R	and XXX
31	00P85C8L79005	E R	A Q	C	Key top	キートップ	T	and XXX
32	00P85C8L79007	E R	A Q	C	Key top	キートップ	U	and XXX
33	00P85C8L79008	E R	A Q	C	Key top	キートップ	I	and INSR
34	00P85C8L79009	E R	A Q	C	Key top	キートップ	O	and XX
35	00P85C9L79031	E R	A Q	C	Key top	キートップ	TAB SET	and I
36	00P83F1L79002	E R	A Q	C	Key top	キートップ	R MAR	and H ZONE
37	00P83E9L79002	E R	A Q	C	Key top	キートップ	EXP	and BEG CORR
38	00P82A2L79000	E R	A Q	C	Key top	キートップ	●	SHIFT LOCK with LED
39	00P83G4L79001	E R	A Q	C	Key top	キートップ	● KB II	with LED
40	00P84A4L79000	E R	A Q	C	Key top	キートップ		SHIFT
41	00P80A6L79000	E R	A Q	C	Key top	キートップ		SPACE

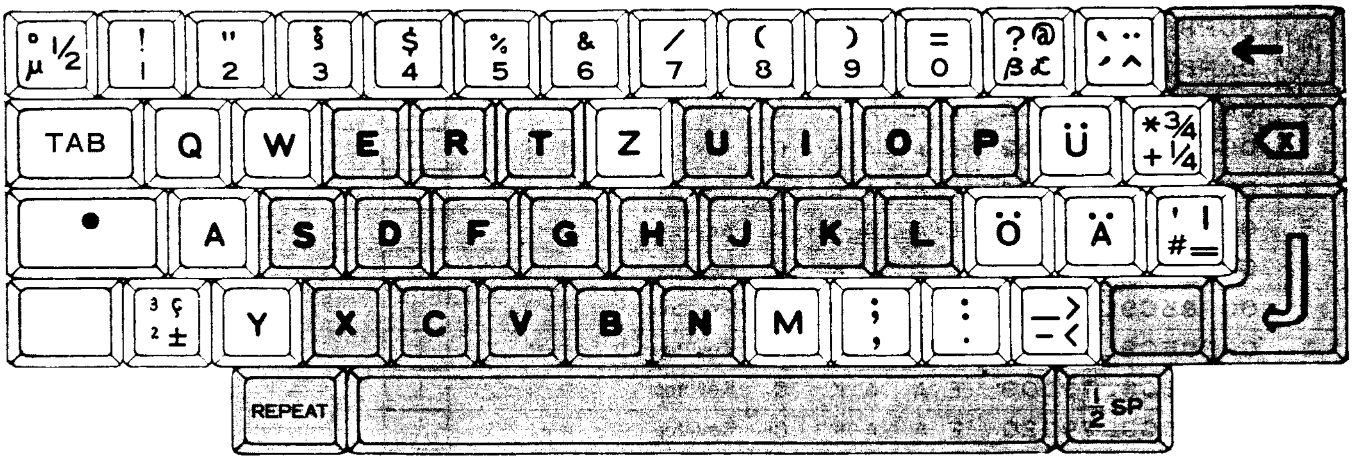
4-1-5 EXCLUSIVE KEY TOPS (ZX-500)···00PZXKTP-500E

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
1	00P85C9L79018	E A	A K	C	Key top	キートップ	INS	
2	00P83F1L79007	E R	A Q	C	Key top	キートップ	DEC TAB	
3	00P83E9L79001	E R	A Q	C	Key top	キートップ	DISP ⫲▷	
4	00P85C9L79027	E R	A Q	C	Key top	キートップ	PAGE FORM	and END FORM
5	00P85C9L79017	E R	A Q	C	Key top	キートップ	DEL	and DEL MEM
6	00P85C9L79028	E R	A Q	C	Key top	キートップ	MEM	and MEM PRINT
7	00P85K3L79002	E R	A Q	C	Key top	キートップ	● IND	with LED
8	00P85K3L79006	E R	A Q	C	Key top	キートップ	● COL.L	with LED

4-1-6 EXCLUSIVE KEY TOPS (ZX-400)···00PZXKTP-400E

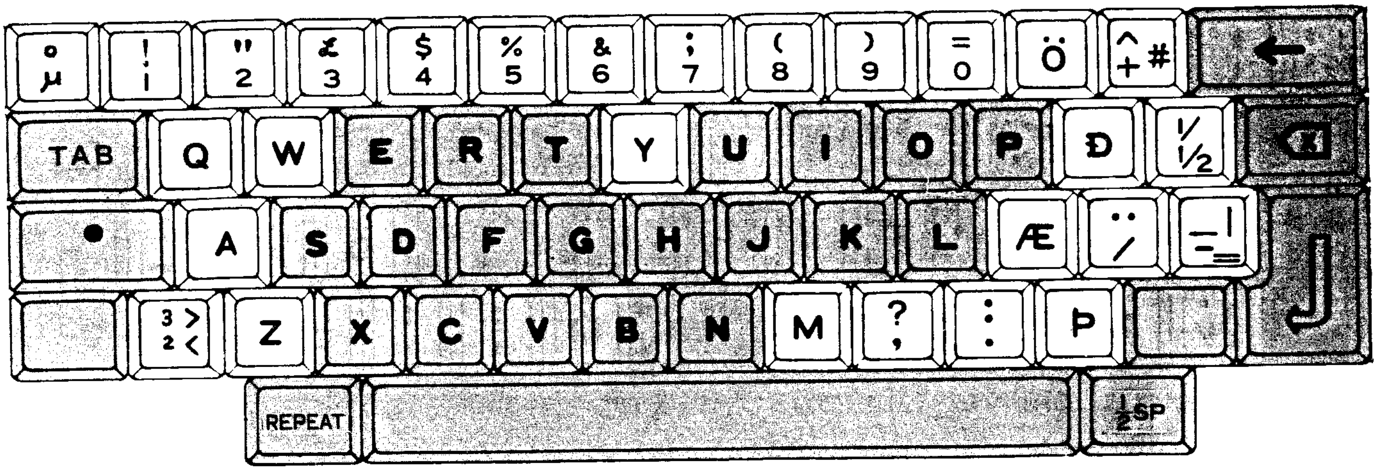
NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
1	00P83G4L79002	E R	A Q	C	Key top	キートップ	● D.TAB	with LED
2	00P83F2L79001	E R	A Q	C	Key top	キートップ	● IND	with LED

4-1-7 EXCLUSIVE KEY TOPS (GERMANY and AUSTRIA)···00PZXKTP-GERM



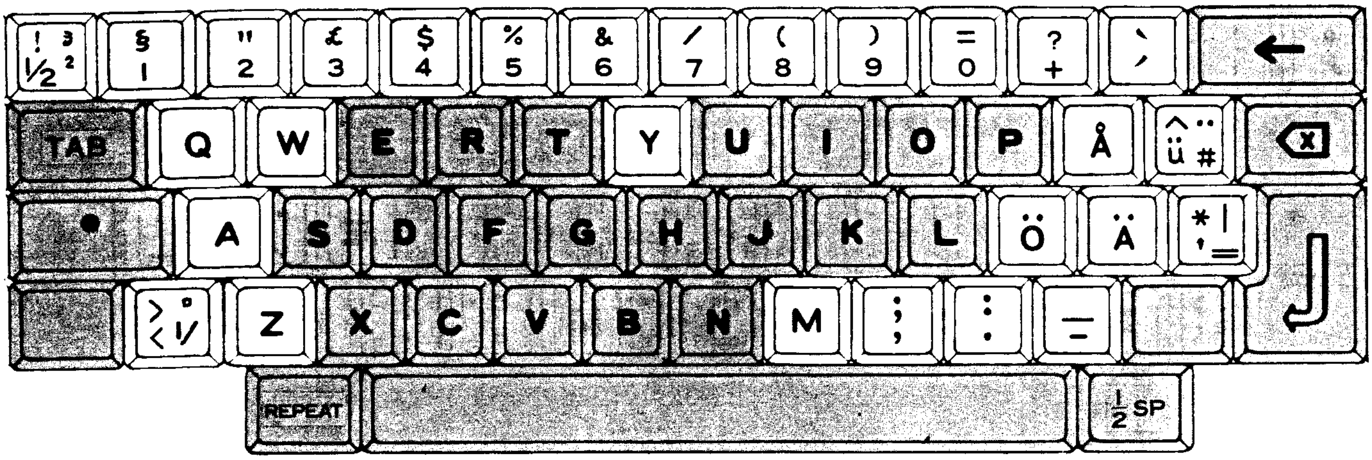
NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION		
		JPN	EXP				
1	00P85D1L79067	E A	A K	C	Key top	キートップ	° ½ μ
2	00P85D1L79002	E A	A K	C	Key top	キートップ	! 1
3	00P85D1L79018	E A	A K	C	Key top	キートップ	" 2
4	00P85D1L79019	E A	A K	C	Key top	キートップ	§ 3
5	00P85D1L79005	E A	A K	C	Key top	キートップ	$ 4
6	00P85D1L79006	E A	A K	C	Key top	キートップ	% 5
7	00P85D1L79020	E A	A K	C	Key top	キートップ	& 6
8	00P85D1L79021	E A	A K	C	Key top	キートップ	/ 7
9	00P85D1L79022	E A	A K	C	Key top	キートップ	(8
10	00P85D1L79023	E A	A K	C	Key top	キートップ	) 9
11	00P85D1L79031	E A	A K	C	Key top	キートップ	= 0
12	00P85D1L79068	E A	A K	C	Key top	キートップ	? @ β £
13	00P85D1L79069	E A	A K	C	Key top	キートップ	` ¨ ´ ^
14	00P85C8L79001	E A	A K	C	Key top	キートップ	Q
15	00P85C8L79002	E A	A K	C	Key top	キートップ	W
16	00P85C8L79015	E A	A K	C	Key top	キートップ	Z
17	00P85C8L79013	E A	A K	C	Key top	キートップ	Ü
18	00P85C8L79030	E A	A K	C	Key top	キートップ	* ¾ + ¼
19	00P85C9L79001	E A	A K	C	Key top	キートップ	A
20	00P85C9L79012	E A	A K	C	Key top	キートップ	Ö
21	00P85C9L79013	E A	A K	C	Key top	キートップ	Ä
22	00P85C9L79041	E A	A K	C	Key top	キートップ	' | # =
23	00P85B1L79011	E A	A K	C	Key top	キートップ	Y
24	00P85B1L79007	E A	A K	C	Key top	キートップ	M
25	00P85B1L79012	E A	A K	C	Key top	キートップ	; ,
26	00P85B1L79013	E A	A K	C	Key top	キートップ	: .
27	00P85B1L79031	E A	A K	C	Key top	キートップ	_ > - <
28	00P85B1L79029	E A	A K	C	Key top	キートップ	3 ç 2 ±

4-1-8 EXCLUSIVE KEY TOPS (ICELAND)···00PZXKTP-ICER



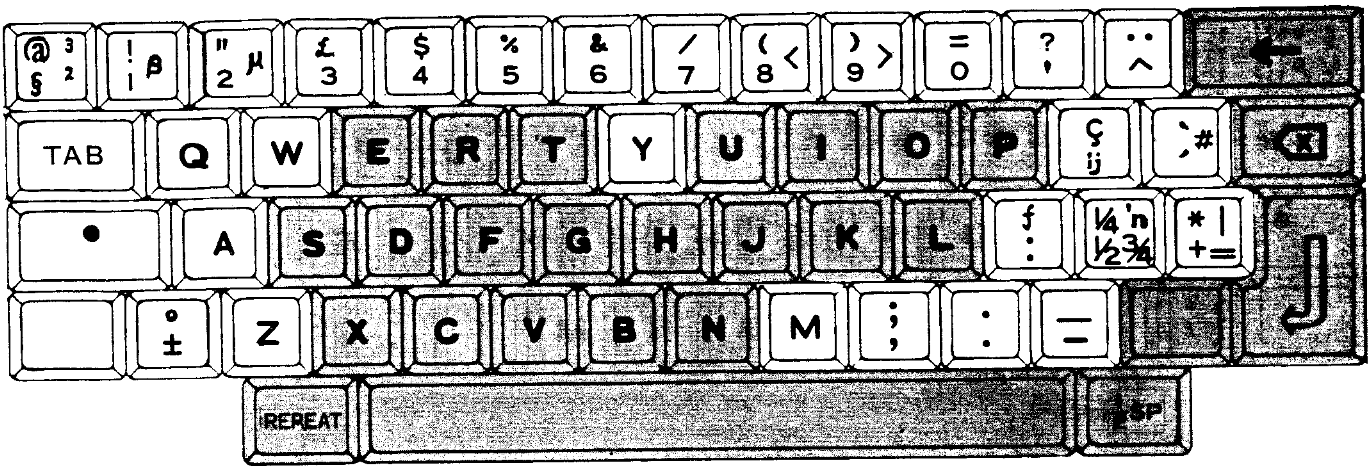
NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION		
		JPN	EXP				
1	00P85D1L79028	E A	A K	C	Key top	キートップ	° µ
2	00P85D1L79002	E A	A K	C	Key top	キートップ	! 1
3	00P85D1L79018	E A	A K	C	Key top	キートップ	" 2
4	00P85D1L79029	E A	A K	C	Key top	キートップ	£ 3
5	00P85D1L79005	E A	A K	C	Key top	キートップ	$ 4
6	00P85D1L79006	E A	A K	C	Key top	キートップ	% 5
7	00P85D1L79020	E A	A K	C	Key top	キートップ	& 6
8	00P85D1L79030	E A	A K	C	Key top	キートップ	; 7
9	00P85D1L79022	E A	A K	C	Key top	キートップ	(8
10	00P85D1L79023	E A	A K	C	Key top	キートップ	) 9
11	00P85D1L79031	E A	A K	C	Key top	キートップ	= 0
12	00P85D1L79032	E A	A K	C	Key top	キートップ	ö
13	00P85D1L79033	E A	A K	C	Key top	キートップ	^ +#
14	00P85C8L79001	E A	A K	C	Key top	キートップ	Q
15	00P85C8L79002	E A	A K	C	Key top	キートップ	W
16	00P85C8L79006	E A	A K	C	Key top	キートップ	Y
17	00P85C8L79016	E A	A K	C	Key top	キートップ	D
18	00P85C8L79017	E A	A K	C	Key top	キートップ	1/ ½
19	00P85C9L79001	E A	A K	C	Key top	キートップ	A
20	00P85C9L79053	E A	A K	C	Key top	キートップ	Æ
21	00P85C9L79054	E A	A K	C	Key top	キートップ	¨ /
22	00P85C9L79055	E A	A K	C	Key top	キートップ	− ¦ - =
23	00P85B1L79011	E A	A K	C	Key top	キートップ	Z
24	00P85B1L79007	E A	A K	C	Key top	キートップ	M
25	00P85B1L79015	E A	A K	C	Key top	キートップ	? ,
26	00P85B1L79013	E A	A K	C	Key top	キートップ	:
27	00P85B1L79016	E A	A K	C	Key top	キートップ	P
28	00P85B1L79017	E A	A K	C	Key top	キートップ	3 > 2 <

4-1-9 EXCLUSIVE KEY TOPS (SWEDEN and FINLAND)···OOPZXKTP-SWED)



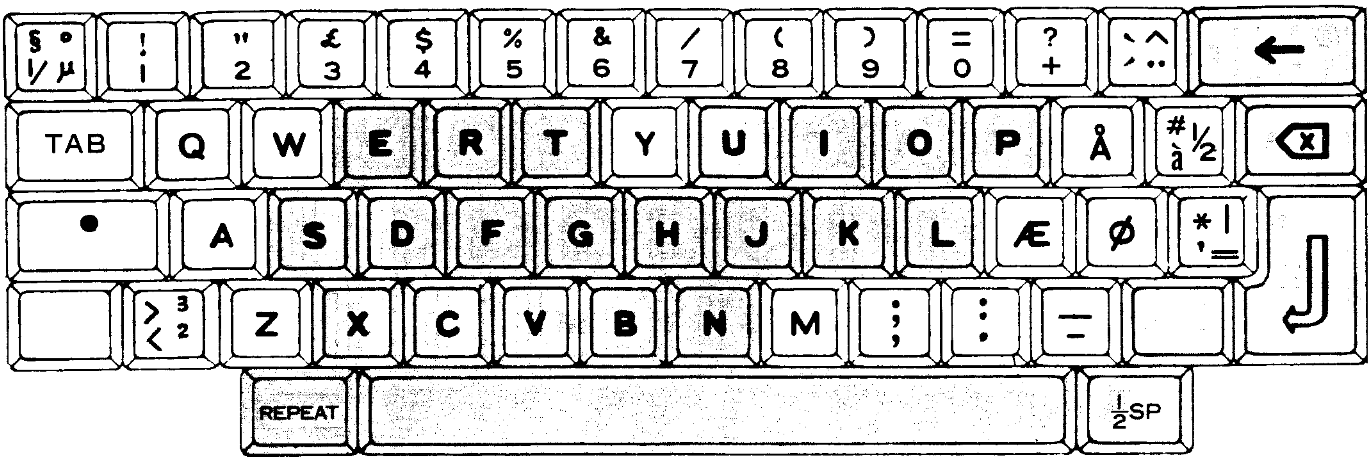
NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
1	OOP85DIL79034	E A	A K	C	Key top	キートップ	! 3 ½ 2	
2	OOP85DIL79035	E A	A K	C	Key top	キートップ	§ 1	
3	OOP85DIL79018	E A	A K	C	Key top	キートップ	" 2	
4	OOP85DIL79029	E A	A K	C	Key top	キートップ	£ 3	
5	OOP85DIL79005	E A	A K	C	Key top	キートップ	$ 4	
6	OOP85DIL79006	E A	A K	C	Key top	キートップ	% 5	
7	OOP85DIL79020	E A	A K	C	Key top	キートップ	& 6	
8	OOP85DIL79021	E A	A K	C	Key top	キートップ	/ 7	
9	OOP85DIL79022	E A	A K	C	Key top	キートップ	(8	
10	OOP85DIL79023	E A	A K	C	Key top	キートップ	) 9	
11	OOP85DIL79031	E A	A K	C	Key top	キートップ	= 0	
12	OOP85DIL79036	E A	A K	C	Key top	キートップ	? +	
13	OOP85DIL79037	E A	A K	C	Key top	キートップ	` ´	
14	OOP85C8L79001	E A	A K	C	Key top	キートップ	Q	
15	OOP85C8L79002	E A	A K	C	Key top	キートップ	W	
16	OOP85C8L79006	E A	A K	C	Key top	キートップ	Y	
17	OOP85C8L79018	E A	A K	C	Key top	キートップ	Å	
18	OOP85C8L79019	E A	A K	C	Key top	キートップ	^ ¨ ü #	
19	OOP85C9L79001	E A	A K	C	Key top	キートップ	A	
20	OOP85C9L79012	E A	A K	C	Key top	キートップ	Ö	
21	OOP85C9L79013	E A	A K	C	Key top	キートップ	Ä	
22	OOP85C9L79035	E A	A K	C	Key top	キートップ	* | ' =	
23	OOP85BIL79001	E A	A K	C	Key top	キートップ	Z	
24	OOP85BIL79007	E A	A K	C	Key top	キートップ	M	
25	OOP85BIL79012	E A	A K	C	Key top	キートップ	;	
26	OOP85BIL79013	E A	A K	C	Key top	キートップ	:	
27	OOP85BIL79014	E A	A K	C	Key top	キートップ	— -	
28	OOP85BIL79018	E A	A K	C	Key top	キートップ	> ° < 1/	

4-1-10 EXCLUSIVE KEY TOPS (HOLLAND)···OOPZXKTP-HOLL



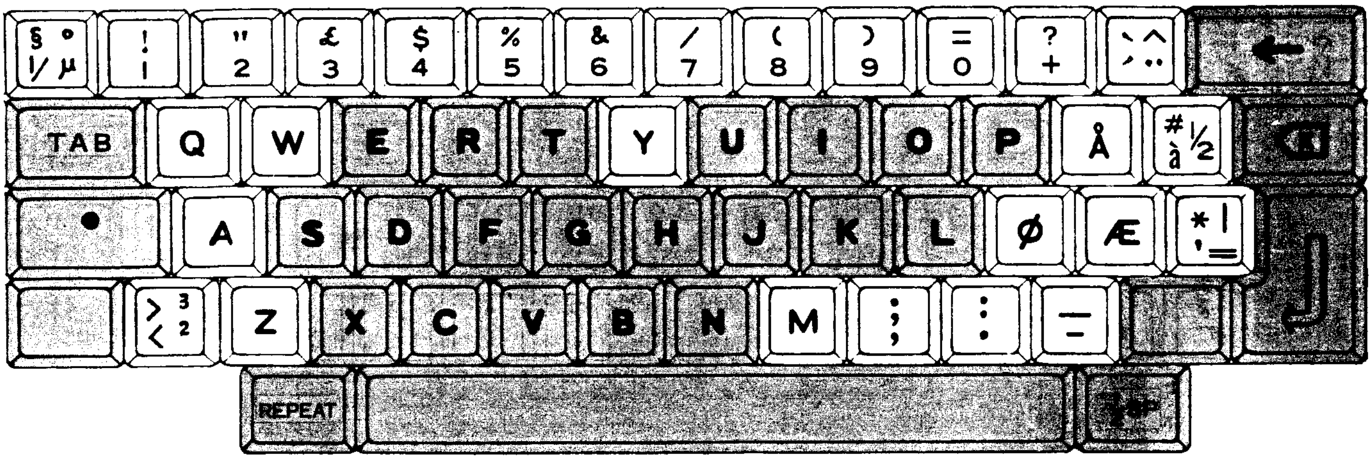
NO.	PARTS CODE	PRICE RANK JPN	PRICE RANK EXP	PARTS RANK	DESCRIPTION		
1	00P85DIL79038	E A	A K	C	Key top	キートップ	@ 3 § 2
2	00P85DIL79039	E A	A K	C	Key top	キートップ	! 1 β
3	00P85DIL79040	E A	A K	C	Key top	キートップ	" 2 μ
4	00P85DIL79029	E A	A K	C	Key top	キートップ	£ 3
5	00P85DIL79005	E A	A K	C	Key top	キートップ	$ 4
6	00P85DIL79006	E A	A K	C	Key top	キートップ	% 5
7	00P85DIL79020	E A	A K	C	Key top	キートップ	& 6
8	00P85DIL79021	E A	A K	C	Key top	キートップ	/ 7
9	00P85DIL79041	E A	A K	C	Key top	キートップ	(8 <
10	00P85DIL79042	E A	A K	C	Key top	キートップ	) 9 >
11	00P85DIL79031	E A	A K	C	Key top	キートップ	= 0
12	00P85DIL79043	E A	A K	C	Key top	キートップ	? ,
13	00P85DIL79044	E A	A K	C	Key top	キートップ	¨ ^
14	00P85C8L79001	E A	A K	C	Key top	キートップ	Q
15	00P85C8L79002	E A	A K	C	Key top	キートップ	W
16	00P85C8L79006	E A	A K	C	Key top	キートップ	Y
17	00P85C8L79020	E A	A K	C	Key top	キートップ	Ç ij
18	00P85C8L79021	E A	A K	C	Key top	キートップ	` ´ #
19	00P85C9L79001	E A	A K	C	Key top	キートップ	A
20	00P85C9L79057	E A	A K	C	Key top	キートップ	f :
21	00P85C9L79058	E A	A K	C	Key top	キートップ	¼ 'n ½ ¾
22	00P85C9L79062	E A	A K	C	Key top	キートップ	* | + =
23	00P85B1L79001	E A	A K	C	Key top	キートップ	Z
24	00P85B1L79007	E A	A K	C	Key top	キートップ	M
25	00P85B1L79012	E A	A K	C	Key top	キートップ	; ,
26	00P85B1L79009	E A	A K	C	Key top	キートップ	: .
27	00P85B1L79014	E A	A K	C	Key top	キートップ	‾ _
28	00P85B1L79019	E A	A K	C	Key top	キートップ	° ±

4-1-11 EXCLUSIVE KEY TOPS (DENMARK)···OOPZXKTP-DENM



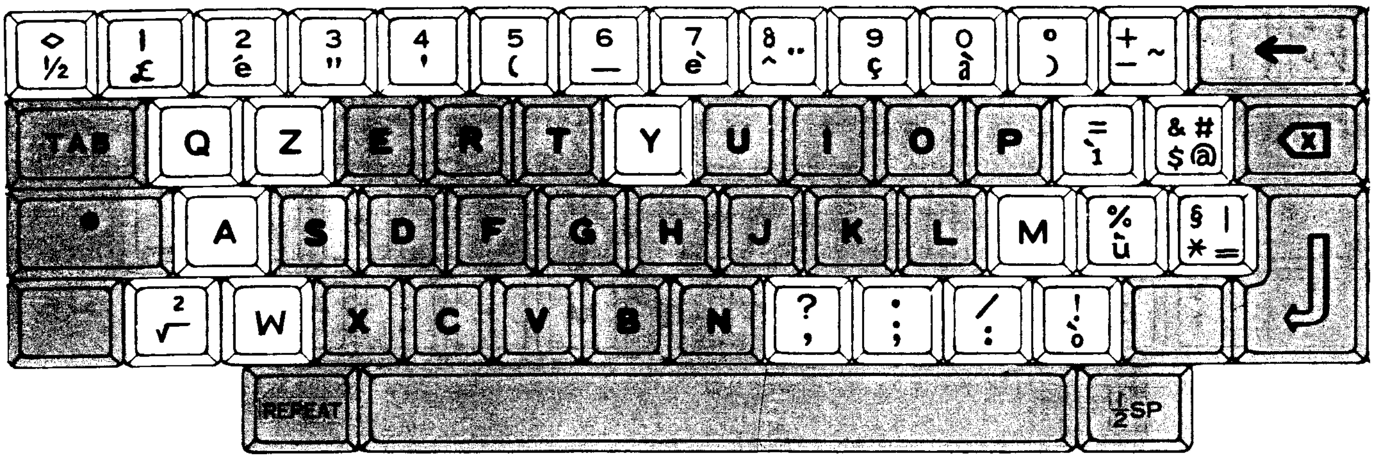
NO.	PARTS CODE	PRICE RANK JPN	PRICE RANK EXP	PARTS RANK	DESCRIPTION		
1	OOP85DIL79045	E A	A K	C	Key top	キートップ	§ ° ½ µ
2	OOP85DIL79002	E A	A K	C	Key top	キートップ	! 1
3	OOP85DIL79018	E A	A K	C	Key top	キートップ	" 2
4	OOP85DIL79029	E A	A K	C	Key top	キートップ	£ 3
5	OOP85DIL79005	E A	A K	C	Key top	キートップ	$ 4
6	OOP85DIL79006	E A	A K	C	Key top	キートップ	% 5
7	OOP85DIL79020	E A	A K	C	Key top	キートップ	& 6
8	OOP85DIL79021	E A	A K	C	Key top	キートップ	/ 7
9	OOP85DIL79022	E A	A K	C	Key top	キートップ	(8
10	OOP85DIL79023	E A	A K	C	Key top	キートップ	) 9
11	OOP85DIL79031	E A	A K	C	Key top	キートップ	= 0
12	OOP85DIL79036	E A	A K	C	Key top	キートップ	? +
13	OOP85DIL79046	E A	A K	C	Key top	キートップ	` ^ ´ ¨
14	OOP85C8L79001	E A	A K	C	Key top	キートップ	Q
15	OOP85C8L79002	E A	A K	C	Key top	キートップ	W
16	OOP85C8L79006	E A	A K	C	Key top	キートップ	Y
17	OOP85C8L79018	E A	A K	C	Key top	キートップ	Å
18	OOP85C8L79022	E A	A K	C	Key top	キートップ	# ½ à
19	OOP85C9L79001	E A	A K	C	Key top	キートップ	A
20	OOP85C9L79053	E A	A K	C	Key top	キートップ	Æ
21	OOP85C9L79034	E A	A K	C	Key top	キートップ	Ø
22	OOP85C9L79035	E A	A K	C	Key top	キートップ	* | ' =
23	OOP85BIL79001	E A	A K	C	Key top	キートップ	Z
24	OOP85BIL79007	E A	A K	C	Key top	キートップ	M
25	OOP85BIL79012	E A	A K	C	Key top	キートップ	;
26	OOP85BIL79013	E A	A K	C	Key top	キートップ	:
27	OOP85BIL79014	E A	A K	C	Key top	キートップ	—
28	OOP85BIL79020	E A	A K	C	Key top	キートップ	> 3 < 2

4-1-12 EXCLUSIVE KEY TOPS (NORWAY)···OOPZXKTP-DENM



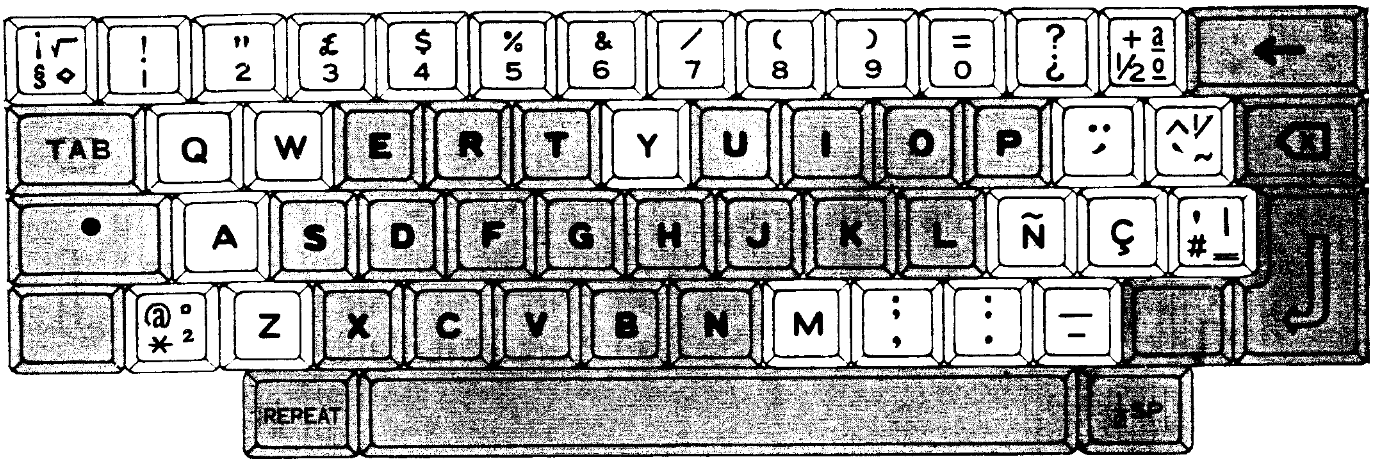
NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION		
		JPN	EXP				
1	OOP85DIL79045	E A	A K	C	Key top	キートップ	§ ○ 1/1 μ
2	OOP85DIL79002	E A	A K	C	Key top	キートップ	! 1
3	OOP85DIL79018	E A	A K	C	Key top	キートップ	" 2
4	OOP85DIL79029	E A	A K	C	Key top	キートップ	£ 3
5	OOP85DIL79005	E A	A K	C	Key top	キートップ	$ 4
6	OOP85DIL79006	E A	A K	C	Key top	キートップ	% 5
7	OOP85DIL79020	E A	A K	C	Key top	キートップ	& 6
8	OOP85DIL79021	E A	A K	C	Key top	キートップ	/ 7
9	OOP85DIL79022	E A	A K	C	Key top	キートップ	(8
10	OOP85DIL79023	E A	A K	C	Key top	キートップ	) 9
11	OOP85DIL79031	E A	A K	C	Key top	キートップ	= 0
12	OOP85DIL79036	E A	A K	C	Key top	キートップ	? +
13	OOP85DIL79046	E A	A K	C	Key top	キートップ	` ^ ´ ¨
14	OOP85C8L79001	E A	A K	C	Key top	キートップ	Q
15	OOP85C8L79002	E A	A K	C	Key top	キートップ	W
16	OOP85C8L79006	E A	A K	C	Key top	キートップ	Y
17	OOP85C8L79018	E A	A K	C	Key top	キートップ	Å
18	OOP85C8L79022	E A	A K	C	Key top	キートップ	# ½ á
19	OOP85C9L79001	E A	A K	C	Key top	キートップ	A
20	OOP85C9L79053	E A	A K	C	Key top	キートップ	Æ
21	OOP85C9L79034	E A	A K	C	Key top	キートップ	Ø
22	OOP85C9L79035	E A	A K	C	Key top	キートップ	* | ' =
23	OOP85B1L79001	E A	A K	C	Key top	キートップ	Z
24	OOP85B1L79007	E A	A K	C	Key top	キートップ	M
25	OOP85B1L79012	E A	A K	C	Key top	キートップ	; ,
26	OOP85B1L79013	E A	A K	C	Key top	キートップ	: .
27	OOP85B1L79014	E A	A K	C	Key top	キートップ	_ -
28	OOP85B1L79020	E A	A K	C	Key top	キートップ	> 3 < 2

4-1-13 EXCLUSIVE KEY TOPS (ITALY)···00PZXKTP-ITAL



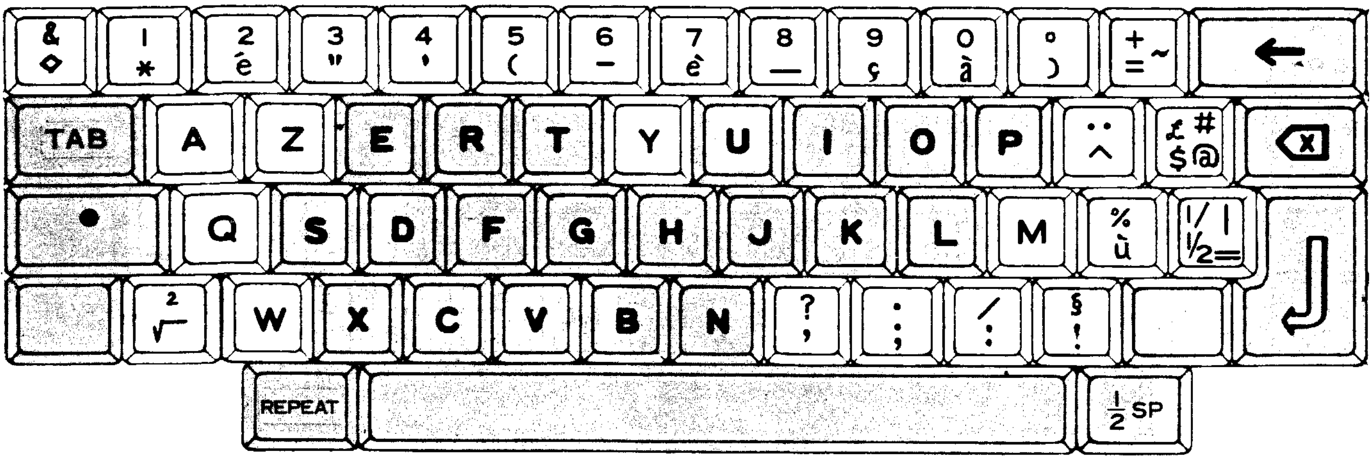
NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION		
		JPN	EXP				
1	00P85D1L79089	E A	A K	C	Key top	キートップ	◇ ½
2	00P85D1L79048	E A	A K	C	Key top	キートップ	1 £
3	00P85D1L79049	E A	A K	C	Key top	キートップ	2 é
4	00P85D1L79050	E A	A K	C	Key top	キートップ	3 "
5	00P85D1L79051	E A	A K	C	Key top	キートップ	4 '
6	00P85D1L79052	E A	A K	C	Key top	キートップ	5 (
7	00P85D1L79053	E A	A K	C	Key top	キートップ	6 —
8	00P85D1L79054	E A	A K	C	Key top	キートップ	7 è
9	00P85D1L79090	E A	A K	C	Key top	キートップ	8 ^ ..
10	00P85D1L79056	E A	A K	C	Key top	キートップ	9 ç
11	00P85D1L79057	E A	A K	C	Key top	キートップ	0 à
12	00P85D1L79058	E A	A K	C	Key top	キートップ	°)
13	00P85D1L79091	E A	A K	C	Key top	キートップ	± ~
14	00P85C8L79001	E A	A K	C	Key top	キートップ	Q
15	00P85C8L79015	E A	A K	C	Key top	キートップ	Z
16	00P85C8L79006	E A	A K	C	Key top	キートップ	Y
17	00P85C8L79023	E A	A K	C	Key top	キートップ	= ì
18	00P85C8L79039	E A	A K	C	Key top	キートップ	& # $ @
19	00P85C9L79001	E A	A K	C	Key top	キートップ	A
20	00P85C9L79036	E A	A K	C	Key top	キートップ	M
21	00P85C9L79037	E A	A K	C	Key top	キートップ	% ù
22	00P85C9L79064	E A	A K	C	Key top	キートップ	§ | * =
23	00P85B1L79022	E A	A K	C	Key top	キートップ	W
24	00P85B1L79015	E A	A K	C	Key top	キートップ	? ,
25	00P85B1L79023	E A	A K	C	Key top	キートップ	. ;
26	00P85B1L79024	E A	A K	C	Key top	キートップ	/ :
27	00P85B1L79025	E A	A K	C	Key top	キートップ	! ò
28	00P85B1L79027	E A	A K	C	Key top	キートップ	2 √

4-1-14 EXCLUSIVE KEY TOPS (SPAIN and PORTUGAL)···OOPZXKTP-SPAI



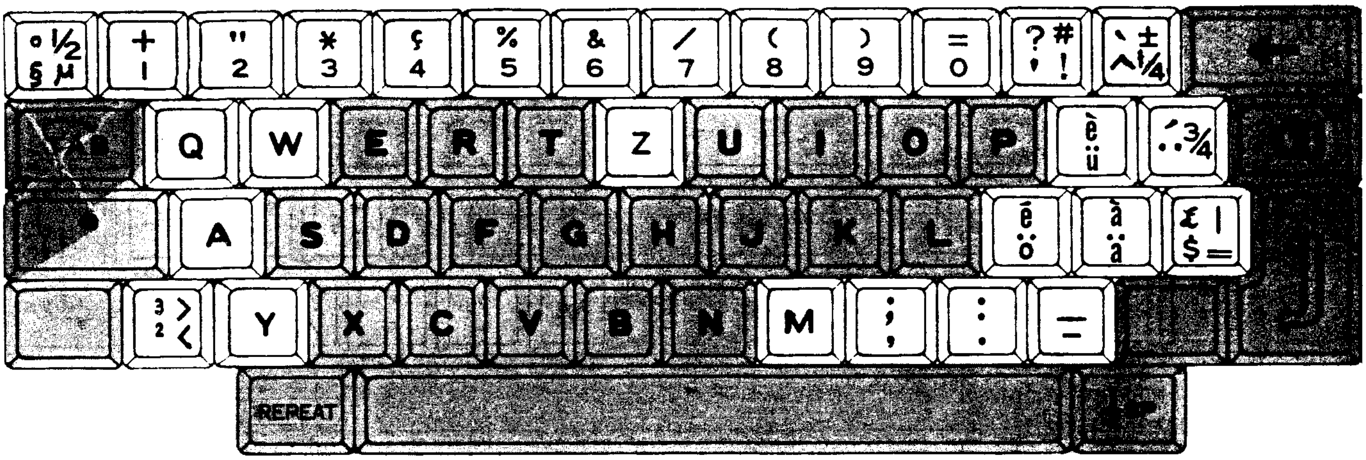
NO.	PARTS CODE	PRICE RANK JPN	PRICE RANK EXP	PARTS RANK	DESCRIPTION			
1	OOP85DIL79060	E A	A K	C	Key top	キートップ	¡ √ § ◇	
2	OOP85DIL79002	E A	A K	C	Key top	キートップ	! ¡	
3	OOP85DIL79018	E A	A K	C	Key top	キートップ	" 2	
4	OOP85DIL79029	E A	A K	C	Key top	キートップ	£ 3	
5	OOP85DIL79005	E A	A K	C	Key top	キートップ	$ 4	
6	OOP85DIL79006	E A	A K	C	Key top	キートップ	% 5	
7	OOP85DIL79020	E A	A K	C	Key top	キートップ	& 6	
8	OOP85DIL79021	E A	A K	C	Key top	キートップ	/ 7	
9	OOP85DIL79022	E A	A K	C	Key top	キートップ	(8	
10	OOP85DIL79023	E A	A K	C	Key top	キートップ	) 9	
11	OOP85DIL79031	E A	A K	C	Key top	キートップ	= 0	
12	OOP85DIL79061	E A	A K	C	Key top	キートップ	? ¿	
13	OOP85DIL79062	E A	A K	C	Key top	キートップ	+ ª ½ º	
14	OOP85C8L79001	E A	A K	C	Key top	キートップ	Q	
15	OOP85C8L79002	E A	A K	C	Key top	キートップ	W	
16	OOP85C8L79006	E A	A K	C	Key top	キートップ	Y	
17	OOP85C8L79025	E A	A K	C	Key top	キートップ	: ;	
18	OOP85C8L79026	E A	A K	C	Key top	キートップ	^ ´ ` ~	
19	OOP85C9L79001	E A	A K	C	Key top	キートップ	A	
20	OOP85C9L79039	E A	A K	C	Key top	キートップ	Ñ	
21	OOP85C9L79040	E A	A K	C	Key top	キートップ	Ç	
22	OOP85C9L79041	E A	A K	C	Key top	キートップ	' | # =	
23	OOP85BIL79001	E A	A K	C	Key top	キートップ	Z	
24	OOP85BIL79007	E A	A K	C	Key top	キートップ	M	
25	OOP85BIL79012	E A	A K	C	Key top	キートップ	; ,	
26	OOP85BIL79013	E A	A K	C	Key top	キートップ	: .	
27	OOP85BIL79014	E A	A K	C	Key top	キートップ	_ -	
28	OOP85BIL79026	E A	A K	C	Key top	キートップ	@ ° * 2	

4-1-15 EXCLUSIVE KEY TOPS (BELGIUM)···00PZXKTP-BELG



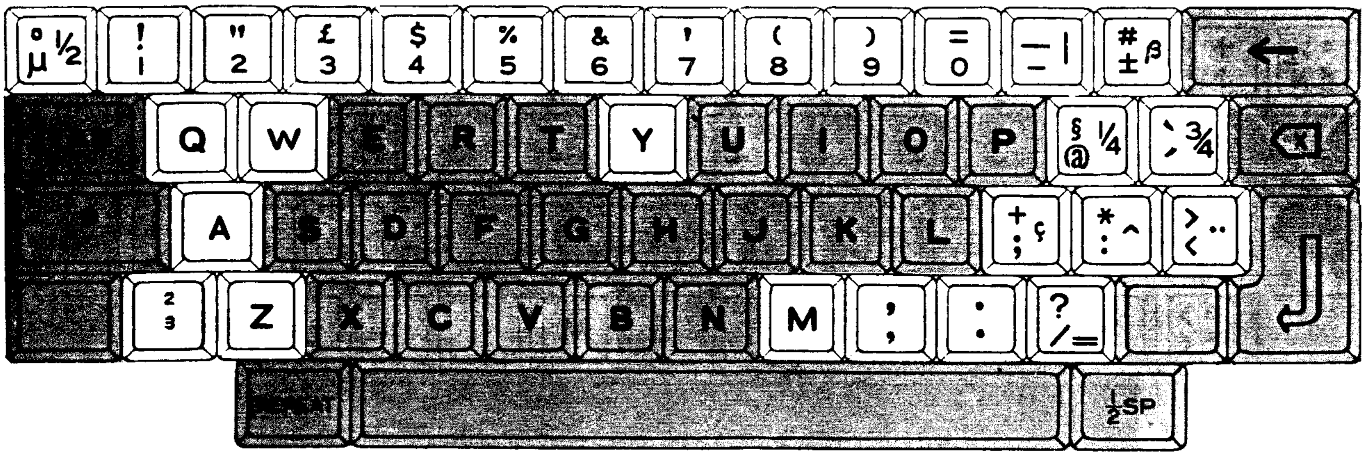
NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
1	00P85D1L79063	E A	A K	C	Key top	キートップ	& ◇	
2	00P85D1L79064	E A	A K	C	Key top	キートップ	1 *	
3	00P85D1L79049	E A	A K	C	Key top	キートップ	2 é	
4	00P85D1L79050	E A	A K	C	Key top	キートップ	3 "	
5	00P85D1L79051	E A	A K	C	Key top	キートップ	4 '	
6	00P85D1L79052	E A	A K	C	Key top	キートップ	5 (	
7	00P85D1L79092	E A	A K	C	Key top	キートップ	6 -	
8	00P85D1L79054	E A	A K	C	Key top	キートップ	7 è	
9	00P85D1L79065	E A	A K	C	Key top	キートップ	8 —	
10	00P85D1L79056	E A	A K	C	Key top	キートップ	9 ç	
11	00P85D1L79057	E A	A K	C	Key top	キートップ	0 à	
12	00P85D1L79058	E A	A K	C	Key top	キートップ	°)	
13	00P85D1L79066	E A	A K	C	Key top	キートップ	+ ~ =	
14	00P85C8L79027	E A	A K	C	Key top	キートップ	A	
15	00P85C8L79015	E A	A K	C	Key top	キートップ	Z	
16	00P85C8L79006	E A	A K	C	Key top	キートップ	Y	
17	00P85C8L79028	E A	A K	C	Key top	キートップ	¨ ^	
18	00P85C8L79029	E A	A K	C	Key top	キートップ	£ # $ @	
19	00P85C9L79042	E A	A K	C	Key top	キートップ	Q	
20	00P85C9L79036	E A	A K	C	Key top	キートップ	M	
21	00P85C9L79037	E A	A K	C	Key top	キートップ	% ù	
22	00P85C9L79043	E A	A K	C	Key top	キートップ	1/ | ½ =	
23	00P85B1L79022	E A	A K	C	Key top	キートップ	W	
24	00P85B1L79015	E A	A K	C	Key top	キートップ	? ,	
25	00P85B1L79023	E A	A K	C	Key top	キートップ	. ;	
26	00P85B1L79024	E A	A K	C	Key top	キートップ	/ :	
27	00P85B1L79028	E A	A K	C	Key top	キートップ	§ !	
28	00P85B1L79027	E A	A K	C	Key top	キートップ	2 √	

4-1-16 EXCLUSIVE KEY TOPS (SWITZERLAND)···00PZXKTP-SWIT



NO.	PARTS CODE	PRICE RANK JPN	 EXP	PARTS RANK	DESCRIPTION			
1	00P85D1L79080	E A	A K	C	Key top	キートップ	°½ §µ	
2	00P85D1L79081	E A	A K	C	Key top	キートップ	+ 1	
3	00P85D1L79018	E A	A K	C	Key top	キートップ	" 2	
4	00P85D1L79082	E A	A K	C	Key top	キートップ	* 3	
5	00P85D1L79083	E A	A K	C	Key top	キートップ	ç 4	
6	00P85D1L79006	E A	A K	C	Key top	キートップ	% 5	
7	00P85D1L79020	E A	A K	C	Key top	キートップ	& 6	
8	00P85D1L79021	E A	A K	C	Key top	キートップ	/ 7	
9	00P85D1L79022	E A	A K	C	Key top	キートップ	(8	
10	00P85D1L79023	E A	A K	C	Key top	キートップ	) 9	
11	00P85D1L79031	E A	A K	C	Key top	キートップ	= 0	
12	00P85D1L79084	E A	A K	C	Key top	キートップ	? # ' !	
13	00P85D1L79085	E A	A K	C	Key top	キートップ	` ± ^ ¼	
14	00P85C8L79001	E A	A K	C	Key top	キートップ	Q	
15	00P85C8L79002	E A	A K	C	Key top	キートップ	W	
16	00P85C8L79015	E A	A K	C	Key top	キートップ	Z	
17	00P85C8L79035	E A	A K	C	Key top	キートップ	è ü	
18	00P85C8L79036	E A	A K	C	Key top	キートップ	´ ¾ ¨	
19	00P85C9L79001	E A	A K	C	Key top	キートップ	A	
20	00P85C9L79047	E A	A K	C	Key top	キートップ	é ö	
21	00P85C9L79048	E A	A K	C	Key top	キートップ	à ä	
22	00P85C9L79049	E A	A K	C	Key top	キートップ	£ ! $ =	
23	00P85B1L79011	E A	A K	C	Key top	キートップ	Y	
24	00P85B1L79007	E A	A K	C	Key top	キートップ	M	
25	00P85B1L79012	E A	A K	C	Key top	キートップ	; ,	
26	00P85B1L79013	E A	A K	C	Key top	キートップ	: .	
27	00P85B1L79014	E A	A K	C	Key top	キートップ	_ -	
28	00P85B1L79017	E A	A K	C	Key top	キートップ	3 > 2 <	

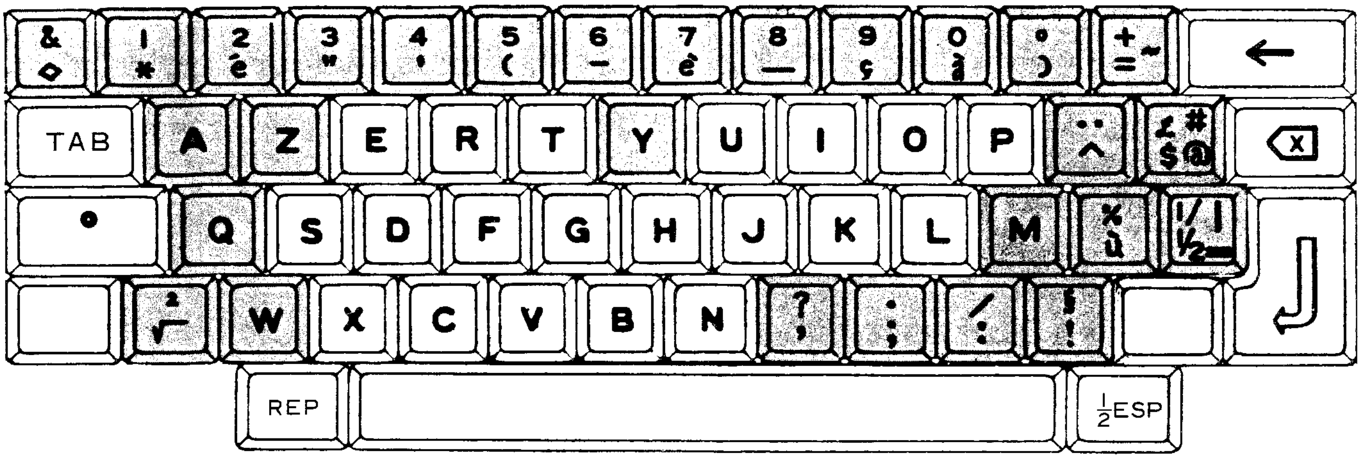
4-1-17 EXCLUSIVE KEY TOPS (UK)···OOPZXKTP-UK//



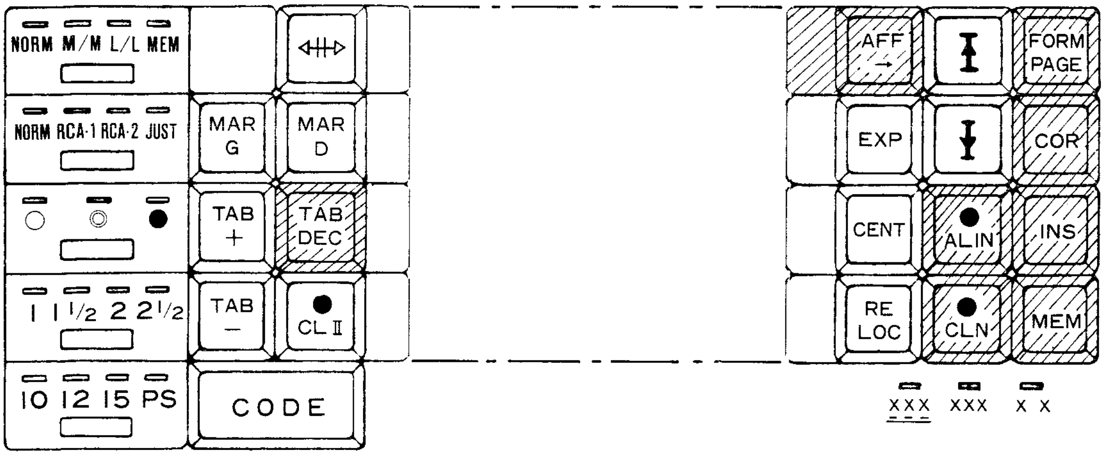
NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
1	OOP85DIL79067	E A	A K	C	Key top	キートップ	°µ½	
2	OOP85DIL79002	E A	A K	C	Key top	キートップ	! 1	
3	OOP85DIL79018	E A	A K	C	Key top	キートップ	" 2	
4	OOP85DIL79029	E A	A K	C	Key top	キートップ	£ 3	
5	OOP85DIL79005	E A	A K	C	Key top	キートップ	$ 4	
6	OOP85DIL79006	E A	A K	C	Key top	キートップ	% 5	
7	OOP85DIL79020	E A	A K	C	Key top	キートップ	& 6	
8	OOP85DIL79086	E A	A K	C	Key top	キートップ	' 7	
9	OOP85DIL79022	E A	A K	C	Key top	キートップ	(8	
10	OOP85DIL79023	E A	A K	C	Key top	キートップ	) 9	
11	OOP85DIL79031	E A	A K	C	Key top	キートップ	= 0	
12	OOP85DIL79087	E A	A K	C	Key top	キートップ	‾–|	
13	OOP85DIL79088	E A	A K	C	Key top	キートップ	# ±β	
14	OOP85C8L79001	E A	A K	C	Key top	キートップ	Q	
15	OOP85C8L79002	E A	A K	C	Key top	キートップ	W	
16	OOP85C8L79006	E A	A K	C	Key top	キートップ	Y	
17	OOP85C8L79037	E A	A K	C	Key top	キートップ	§ @¼	
18	OOP85C8L79038	E A	A K	C	Key top	キートップ	>¾	
19	OOP85C9L79001	E A	A K	C	Key top	キートップ	A	
20	OOP85C9L79050	E A	A K	C	Key top	キートップ	+ ;ç	
21	OOP85C9L79051	E A	A K	C	Key top	キートップ	* :^	
22	OOP85C9L79052	E A	A K	C	Key top	キートップ	> <¨	
23	OOP85BIL79001	E A	A K	C	Key top	キートップ	Z	
24	OOP85BIL79007	E A	A K	C	Key top	キートップ	M	
25	OOP85BIL79008	E A	A K	C	Key top	キートップ	; ;	
26	OOP85BIL79009	E A	A K	C	Key top	キートップ	: :	
27	OOP85BIL79030	E A	A K	C	Key top	キートップ	? /=	
28	OOP85BIL79034	E A	A K	C	Key top	キートップ	2 3	

4-2 KEY TOPS FOR FRANCE

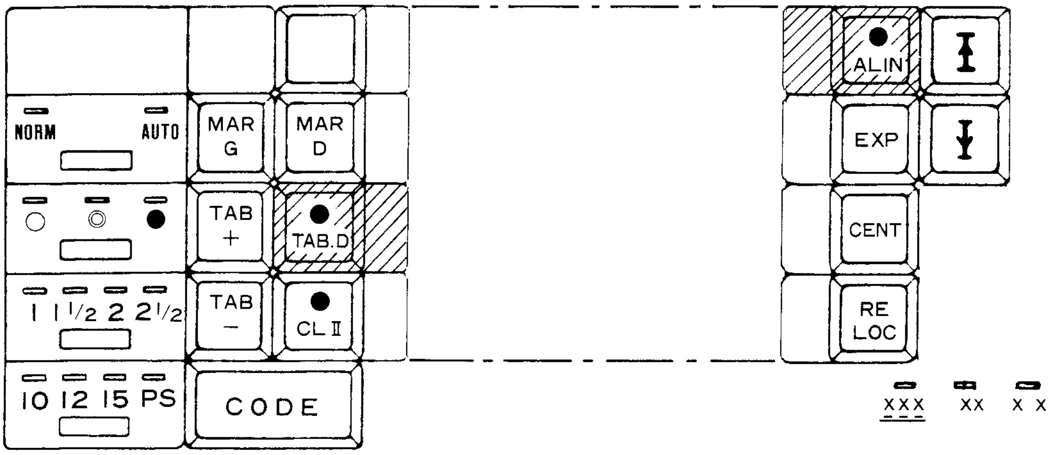
4-2-1 COMMON KEY TOPS (FRANCE)


TAB
A
Z
E
R
T
Y
U
I
O
P
Q
S
D
F
G
H
J
K
L
M
W
X
C
V
B
N
REP
½ESP

4-2-2 EXCLUSIVE KEY TOPS (ZX-500)


NORM M/M L/L MEM
NORM RCA-1 RCA-2 JUST
○ ◎ ●
1 1½ 2 2½
10 12 15 PS
MAR G
MAR D
TAB +
TAB DEC
TAB −
CL II
CODE
AFF →
FORM PAGE
EXP
COR
CENT
ALIN
INS
RE LOC
CLN
MEM
XXX XXX X X

4-2-3 EXCLUSIVE KEY TOPS (ZX-400)


NORM AUTO
○ ◎ ●
1 1½ 2 2½
10 12 15 PS
MAR G
MAR D
TAB +
TAB.D
TAB −
CL II
CODE
ALIN
EXP
CENT
RE LOC
XXX XX X X

4-2-4 COMMON KEY TOPS (FRANCE)…00PZXKTP-FRAN

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
1	00P85C8L79010	E A	A K	C	Key top	キートップ	P	
	00P85C8L79X02	E A	A K	C	Key top	キートップ	P	and —
2	00P85C9L79002	E A	A K	C	Key top	キートップ	S	
3	00P85C9L79003	E A	A K	C	Key top	キートップ	D	
4	00P85C9L79004	E A	A K	C	Key top	キートップ	F	
5	00P85C9L79005	E A	A K	C	Key top	キートップ	G	
6	00P85C9L79006	E A	A K	C	Key top	キートップ	H	
7	00P85C9L79007	E A	A K	C	Key top	キートップ	J	
8	00P85C9L79008	E A	A K	C	Key top	キートップ	K	
9	00P85C9L79009	E A	A K	C	Key top	キートップ	L	
10	00P85C9L79063	E A	A K	C	Key top	キートップ	MAR G	
11	00P85C9L79060	E A	A K	C	Key top	キートップ	TAB —	
12	00P85C9L79028	E A	A K	C	Key top	キートップ	↥	
13	00P85C9L79030	E A	A K	C	Key top	キートップ	↧	
14	00P85B1L79002	E A	A K	C	Key top	キートップ	X	
15	00P85B1L79003	E A	A K	C	Key top	キートップ	C	
16	00P85B1L79004	E A	A K	C	Key top	キートップ	V	
17	00P85B1L79005	E A	A K	C	Key top	キートップ	B	
18	00P85B1L79006	E A	A K	C	Key top	キートップ	N	
19	00P83A9L79001	E R	A Q	C	Key top	キートップ	TAB	
20	00P83A9L79002	E R	A Q	C	Key top	キートップ	⌫	and ⊠
21	00P83F1L79005	E R	A Q	C	Key top	キートップ	◁‖▷	
22	00P83E9L79003	E R	A Q	C	Key top	キートップ	CENT	
23	00P83E9L79004	E R	A Q	C	Key top	キートップ	RE LOC	
24	00P84B3L79004	E R	A Q	C	Key top	キートップ	REP	
25	00P84B3L79005	E R	A Q	C	Key top	キートップ	½ESP	
26	00P81C5L79001	E R	A Q	C	Key top	キートップ	CODE	
27	00P81B4L79001	E R	A Q	C	Key top	キートップ	←	
28	00P81L3L79001	E R	A Q	C	Key top	キートップ	⏎	
29	00P85C8L79003	E R	A Q	C	Key top	キートップ	E	and CL XXX
30	00P85C8L79004	E R	A Q	C	Key top	キートップ	R	and XXX

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
31	00P85C8L79005	E R	A Q	C	Key top	キートップ	T	and XXX
32	00P85C8L79007	E R	A Q	C	Key top	キートップ	U	and XXX
33	00P85C8L79X01	E R	A Q	C	Key top	キートップ	I	and INTR P
34	00P85C8L79009	E R	A Q	C	Key top	キートップ	O	and XX
35	00P85C9L79059	E R	A Q	C	Key top	キートップ	TAB +	and I
36	00P83F1L79009	E R	A Q	C	Key top	キートップ	MAR D	and Z.J
37	00P83E9L79X01	E R	A Q	C	Key top	キートップ	EXP	and ← CORR
38	00P82A2L79000	E R	A Q	C	Key top	キートップ	●	SHIFT LOCK with LED
39	00P83G4L79003	E R	A Q	C	Key top	キートップ	● CL Ⅱ	with LED
40	00P84A4L79000	E R	A Q	C	Key top	キートップ		SHIFT
41	00P80A6L79000	E R	A Q	C	Key top	キートップ		SPACE

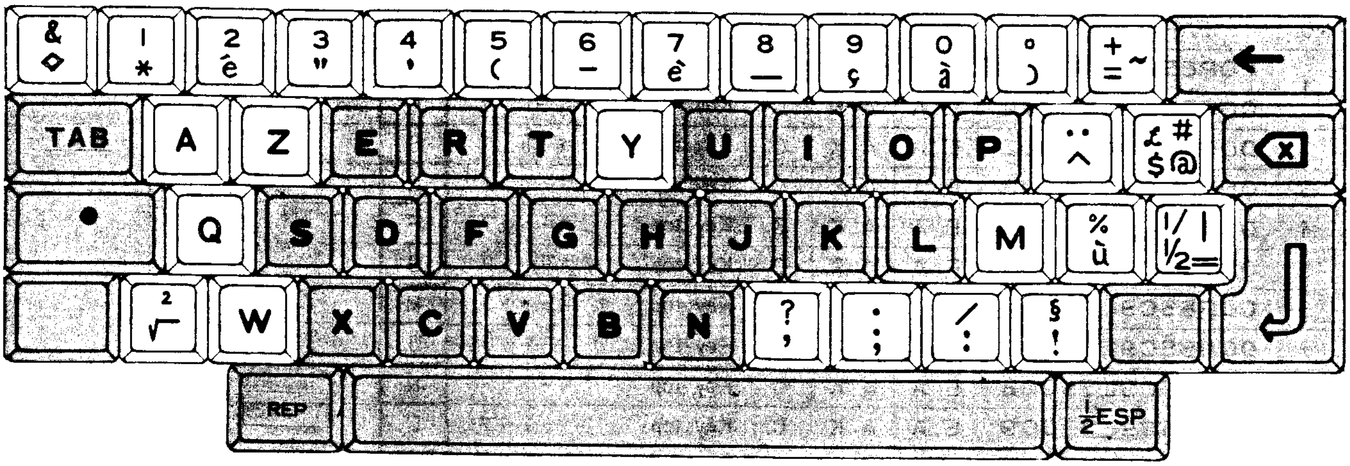
4-2-5 EXCLUSIVE KEY TOPS (ZX-500)…00PZXKTP-500F

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
1	00P85C9L79018	E A	A K	C	Key top	キートップ	INS	
2	00P83F1L79008	E R	A Q	C	Key top	キートップ	TAB DEC	
3	00P83E9L79009	E R	A Q	C	Key top	キートップ	AFF →	
4	00P85C9L79061	E R	A Q	C	Key top	キートップ	FORM PAGE	and FIN FORM
5	00P85C9L79065	E R	A Q	C	Key top	キートップ	COR	and COR MEM
6	00P85C9L79028	E R	A Q	C	Key top	キートップ	MEM	and IMPR MEM
7	00P85K3L79008	E R	A Q	C	Key top	キートップ	● ALIN	with LED
8	00P85K3L79007	E R	A Q	C	Key top	キートップ	● CLN	with LED

4-2-6 EXCLUSIVE KEY TOPS (ZX-400)…00PZXKTP-400F

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
1	00P83G4L79004	E R	A Q	C	Key top	キートップ	● TAB.D	
2	00P83F2L79005	E R	A Q	C	Key top	キートップ	● ALIN	

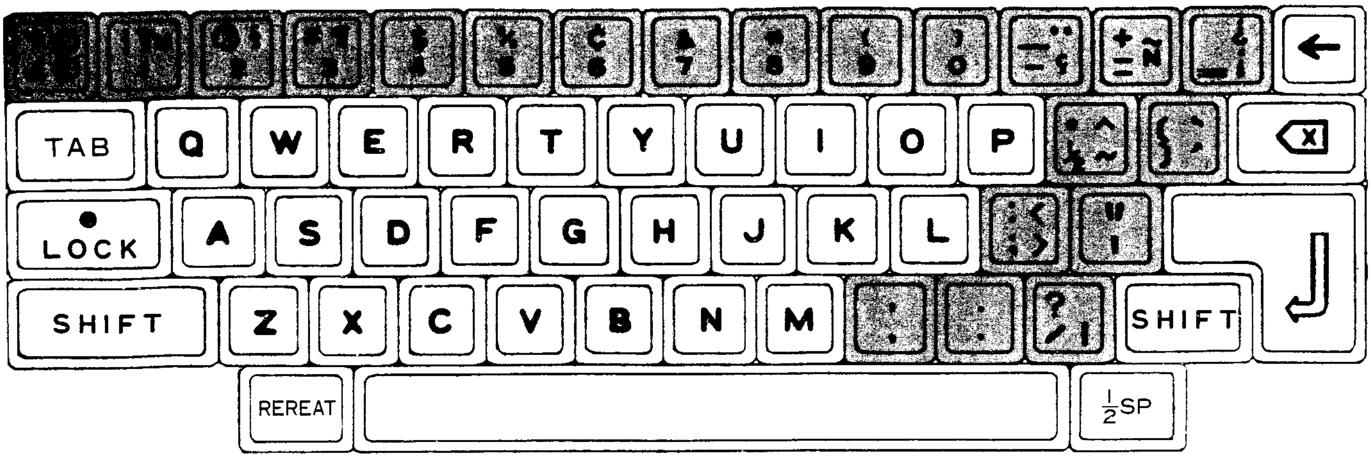
4-2-7 EXCLUSIVE KEY TOPS (FRANCE)···00PZXKTP-FRAN



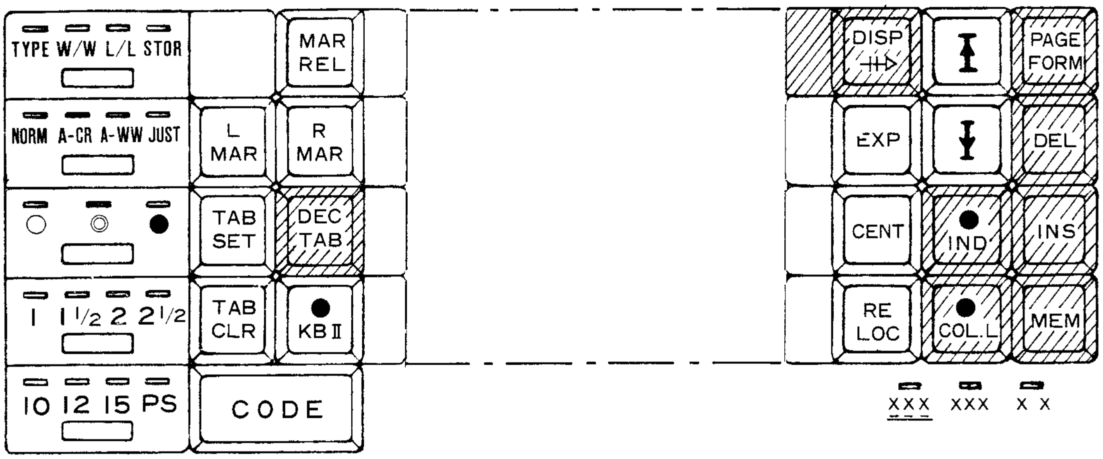
NO.	PARTS CODE	PRICE RANK JPN	PRICE RANK EXP	PARTS RANK	DESCRIPTION		
1	00P85D1L79063	E A	A K	C	Key top	キートップ	& ◇
2	00P85D1L79064	E A	A K	C	Key top	キートップ	1 *
3	00P85D1L79049	E A	A K	C	Key top	キートップ	2 é
4	00P85D1L79050	E A	A K	C	Key top	キートップ	3 "
5	00P85D1L79051	E A	A K	C	Key top	キートップ	4 '
6	00P85D1L79052	E A	A K	C	Key top	キートップ	5 (
7	00P85D1L79092	E A	A K	C	Key top	キートップ	6 -
8	00P85D1L79054	E A	A K	C	Key top	キートップ	7 è
9	00P85D1L79065	E A	A K	C	Key top	キートップ	8 _
10	00P85D1L79056	E A	A K	C	Key top	キートップ	9 ç
11	00P85D1L79057	E A	A K	C	Key top	キートップ	0 à
12	00P85D1L79058	E A	A K	C	Key top	キートップ	°)
13	00P85D1L79066	E A	A K	C	Key top	キートップ	+ = ~
14	00P85C8L79027	E A	A K	C	Key top	キートップ	A
15	00P85C8L79015	E A	A K	C	Key top	キートップ	Z
16	00P85C8L79006	E A	A K	C	Key top	キートップ	Y
17	00P85C8L79028	E A	A K	C	Key top	キートップ	¨ ^
18	00P85C8L79029	E A	A K	C	Key top	キートップ	£ # $ @
19	00P85C9L79042	E A	A K	C	Key top	キートップ	Q
20	00P85C9L79036	E A	A K	C	Key top	キートップ	M
21	00P85C9L79037	E A	A K	C	Key top	キートップ	% ù
22	00P85C9L79043	E A	A K	C	Key top	キートップ	1/ | ½ =
23	00P85B1L79022	E A	A K	C	Key top	キートップ	W
24	00P85B1L79015	E A	A K	C	Key top	キートップ	? ,
25	00P85B1L79023	E A	A K	C	Key top	キートップ	. ;
26	00P85B1L79024	E A	A K	C	Key top	キートップ	/ :
27	00P85B1L79028	E A	A K	C	Key top	キートップ	§ !
28	00P85B1L79027	E A	A K	C	Key top	キートップ	2 √‾

4-3 KEY TOPS FOR USA AND CANADA

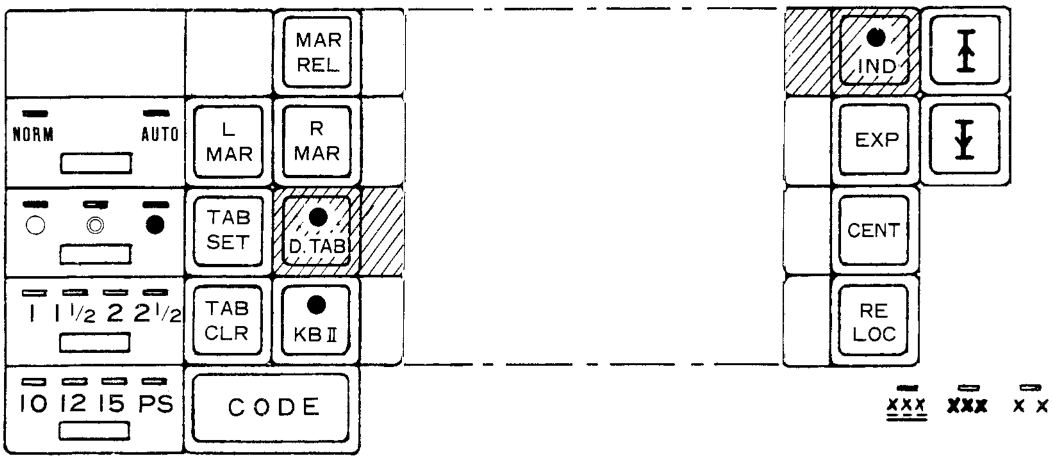
4-3-1 COMMON KEY TOPS (USA and CANADA)


TAB
Q
W
E
R
T
Y
U
I
O
P
LOCK
A
S
D
F
G
H
J
K
L
SHIFT
Z
X
C
V
B
N
M
SHIFT
REREAT
½SP

4-3-2 EXCLUSIVE KEY TOPS (ZX-500)


TYPE W/W L/L STOR
NORM A-CR A-WW JUST
I I½ 2 2½
10 12 15 PS
CODE
MAR REL
L MAR
R MAR
TAB SET
DEC TAB
TAB CLR
KB II
DISP
PAGE FORM
EXP
DEL
CENT
IND
INS
RE LOC
COL.L
MEM
XXX XXX X X

4-3-3 EXCLUSIVE KEY TOPS (ZX-400)


NORM AUTO
I I½ 2 2½
10 12 15 PS
CODE
MAR REL
L MAR
R MAR
TAB SET
D.TAB
TAB CLR
KB II
IND
EXP
CENT
RE LOC
XXX XXX X X

4-3-4 COMMON KEY TOPS (USA and CANADA)···00PZXKTP-AMER

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
1	00P85D1L79015	E A	A K	C	Key top	キートップ	←	
2	00P85C8L79001	E A	A K	C	Key top	キートップ	Q	
3	00P85C8L79002	E A	A K	C	Key top	キートップ	W	
4	00P85C8L79006	E A	A K	C	Key top	キートップ	Y	
5	00P85C8L79010	E A	A K	C	Key top	キートップ	P	
	00P85C8L79X02	E A	A K	C	Key top	キートップ	P	and —
6	00P85C9L79001	E A	A K	C	Key top	キートップ	A	
7	00P85C9L79002	E A	A K	C	Key top	キートップ	S	
8	00P85C9L79003	E A	A K	C	Key top	キートップ	D	
9	00P85C9L79004	E A	A K	C	Key top	キートップ	F	
10	00P85C9L79005	E A	A K	C	Key top	キートップ	G	
11	00P85C9L79006	E A	A K	C	Key top	キートップ	H	
12	00P85C9L79007	E A	A K	C	Key top	キートップ	J	
13	00P85C9L79008	E A	A K	C	Key top	キートップ	K	
14	00P85C9L79009	E A	A K	C	Key top	キートップ	L	
15	00P85C9L79020	E A	A K	C	Key top	キートップ	L MAR	
16	00P85C9L79032	E A	A K	C	Key top	キートップ	TAB CLR	
17	00P85C9L79029	E A	A K	C	Key top	キートップ	↑	
18	00P85C9L79030	E A	A K	C	Key top	キートップ	↓	
19	00P85B1L79001	E A	A K	C	Key top	キートップ	Z	
20	00P85B1L79002	E A	A K	C	Key top	キートップ	X	
21	00P85B1L79003	E A	A K	C	Key top	キートップ	C	
22	00P85B1L79004	E A	A K	C	Key top	キートップ	V	
23	00P85B1L79005	E A	A K	C	Key top	キートップ	B	
24	00P85B1L79006	E A	A K	C	Key top	キートップ	N	
25	00P85B1L79007	E A	A K	C	Key top	キートップ	M	
26	00P83A9L79001	E R	A Q	C	Key top	キートップ	TAB	
27	00P83A9L79002	E R	A Q	C	Key top	キートップ	⌫	and ☒
28	00P83F1L79001	E R	A Q	C	Key top	キートップ	MAR REL	
29	00P83E9L79003	E R	A Q	C	Key top	キートップ	CENT	
30	00P83E9L79004	E R	A Q	C	Key top	キートップ	RE LOC	
31	00P84B3L79001	E R	A Q	C	Key top	キートップ	REPEAT	
32	00P84B3L79004	E R	A Q	C	Key top	キートップ	½ SP	
33	00P81C5L79001	E R	A Q	C	Key top	キートップ	CODE	

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
34	00P81J3L79001	E R	A Q	C	Key top	キートップ	⏎	
35	00P84A4L79001	E R	A Q	C	Key top	キートップ	SHIFT	
36	00P81D2L79001	E R	A Q	C	Key top	キートップ	SHIFT	
37	00P85C8L79003	E R	A Q	C	Key top	キートップ	E	and CL XXX
38	00P85C8L79007	E R	A Q	C	Key top	キートップ	U	and XXX
39	00P85C8L79004	E R	A Q	C	Key top	キートップ	R	and XXX
40	00P85C8L79008	E R	A Q	C	Key top	キートップ	I	and INSR
41	00P85C8L79005	E R	A Q	C	Key top	キートップ	T	and XXX
42	00P85C8L79009	E R	A Q	C	Key top	キートップ	0	and XX
43	00P83E9L79002	E R	A Q	C	Key top	キートップ	EXP	and BEG CORR
44	00P85C9L79031	E R	A Q	C	Key top	キートップ	TAB SET	and I
45	00P83F1L79002	E R	A Q	C	Key top	キートップ	R MAR	and H ZONE
46	00P82A2L79001	E R	A Q	C	Key top	キートップ	● LOCK	
47	00P83G4L79001	E R	A Q	C	Key top	キートップ	● KB II	
48	00P80A6L70000	E R	A Q	C	Key top	キートップ		SPACE

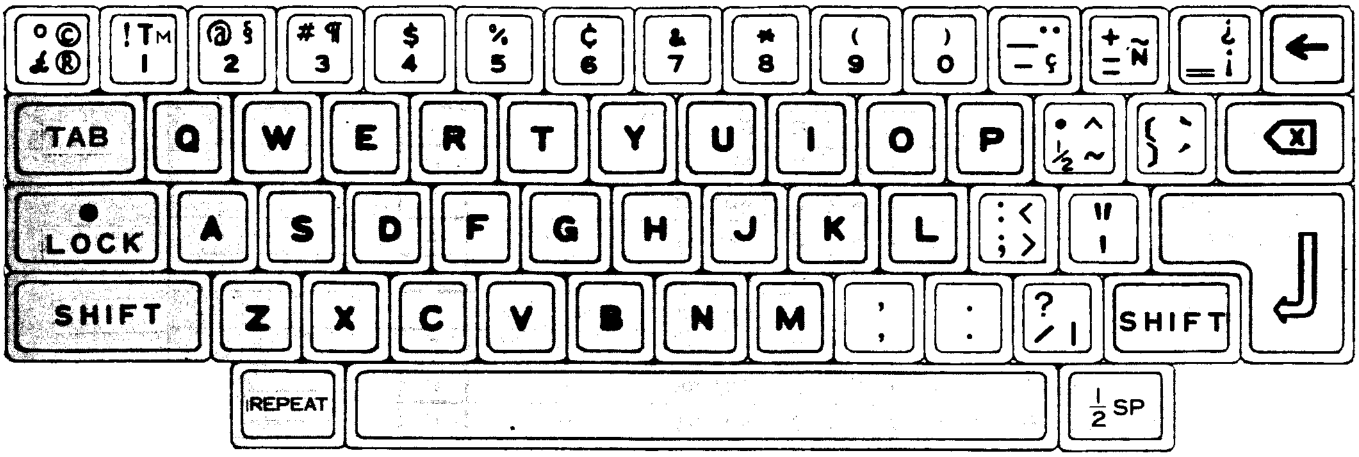
4-3-5 EXCLUSIVE KEY TOPS (ZX-500)···00PZXKTP-500A

NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
1	00P85C9L79018	E A	A K	C	Key top	キートップ	INS	
2	00P83F1L79007	E R	A Q	C	Key top	キートップ	DEC TAB	
3	00P83E9L79001	E R	A Q	C	Key top	キートップ	DISP ⇥	
4	00P85C9L79028	E R	A Q	C	Key top	キートップ	MEM	and MEM PRINT
5	00P85C9L79027	E R	A Q	C	Key top	キートップ	PAGE FORM	and END FORM
6	00P85C9L79017	E R	A Q	C	Key top	キートップ	DEL	and DEL MEM
7	00P85K3L79002	E R	A Q	C	Key top	キートップ	● IND	
8	00P85K3L79006	E R	A Q	C	Key top	キートップ	● COL.L	

4-3-6 EXCLUSIVE KEY TOPS (ZX-400)···00PZXKTP-400A

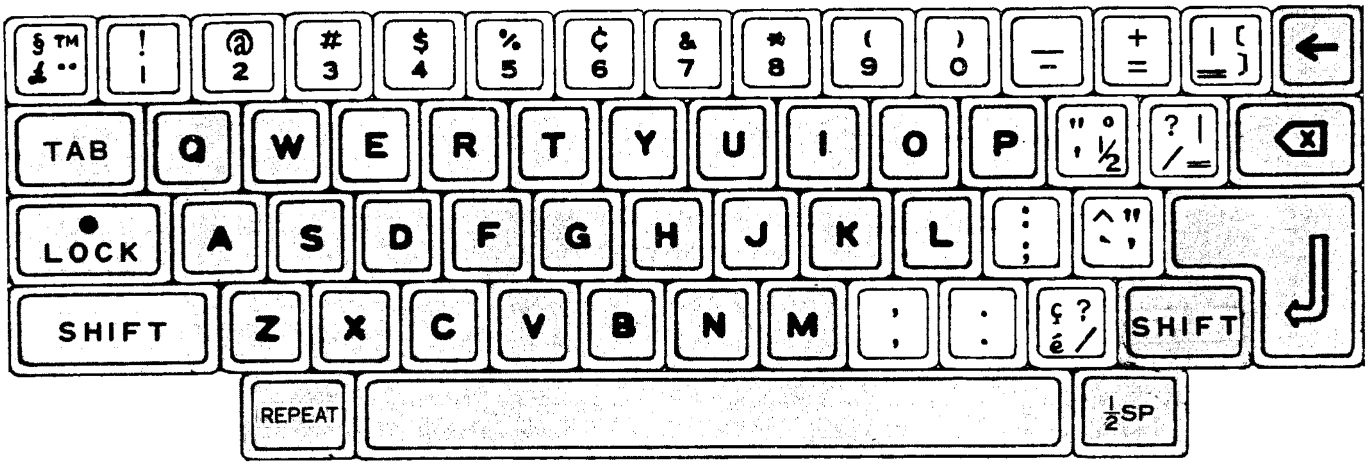
NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION			
		JPN	EXP					
1	00P83G4L79002	E R	A Q	C	Key top	キートップ	● D.TAB	
2	00P83F2L79001	E R	A Q	C	Key top	キートップ	● IND	

4-3-7 EXCLUSIVE KEY TOPS (USA)···00PZXKTP-USA/



NO.	PARTS CODE	PRICE RANK JPN	PRICE RANK EXP	PARTS RANK	DESCRIPTION		
1	00P85D1L79073	E A	A K	C	Key top	キートップ	° © £ ®
2	00P85D1L79074	E A	A K	C	Key top	キートップ	! TM 1
3	00P85D1L79075	E A	A K	C	Key top	キートップ	@ § 2
4	00P85D1L79076	E A	A K	C	Key top	キートップ	# ¶ 3
5	00P85D1L79005	E A	A K	C	Key top	キートップ	$ 4
6	00P85D1L79006	E A	A K	C	Key top	キートップ	% 5
7	00P85D1L79007	E A	A K	C	Key top	キートップ	¢ 6
8	00P85D1L79008	E A	A K	C	Key top	キートップ	& 7
9	00P85D1L79009	E A	A K	C	Key top	キートップ	* 8
10	00P85D1L79010	E A	A K	C	Key top	キートップ	(9
11	00P85D1L79011	E A	A K	C	Key top	キートップ	) 0
12	00P85D1L79077	E A	A K	C	Key top	キートップ	— ¨ – ç
13	00P85D1L79013	E A	A K	C	Key top	キートップ	+ ~ = N
14	00P85D1L79079	E A	A K	C	Key top	キートップ	¿ = ¡
15	00P85C8L79033	E A	A K	C	Key top	キートップ	· ^ ½ ~
16	00P85C8L79034	E A	A K	C	Key top	キートップ	{ ` } ´
17	00P85C9L79046	E A	A K	C	Key top	キートップ	: < ; >
18	00P85C9L79011	E A	A K	C	Key top	キートップ	" '
19	00P85B1L79008	E A	A K	C	Key top	キートップ	;
20	00P85B1L79009	E A	A K	C	Key top	キートップ	:
21	00P85B1L79033	E A	A K	C	Key top	キートップ	? / |

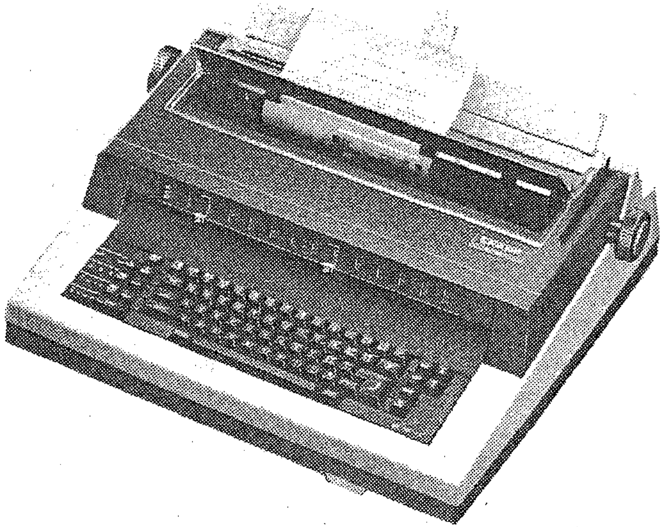
4-3-8 EXCLUSIVE KEY TOPS (CANADA)···00PZXKTP-CANA



NO.	PARTS CODE	PRICE RANK		PARTS RANK	DESCRIPTION		
		JPN	EXP				
1	00P85D1L79070	E A	A K	C	Key top	キートップ	§ TM £ ··
2	00P85D1L79002	E A	A K	C	Key top	キートップ	! 1
3	00P85D1L79003	E A	A K	C	Key top	キートップ	@ 2
4	00P85D1L79004	E A	A K	C	Key top	キートップ	# 3
5	00P85D1L79005	E A	A K	C	Key top	キートップ	$ 4
6	00P85D1L79006	E A	A K	C	Key top	キートップ	% 5
7	00P85D1L79007	E A	A K	C	Key top	キートップ	¢ 6
8	00P85D1L79008	E A	A K	C	Key top	キートップ	& 7
9	00P85D1L79009	E A	A K	C	Key top	キートップ	* 8
10	00P85D1L79010	E A	A K	C	Key top	キートップ	(9
11	00P85D1L79011	E A	A K	C	Key top	キートップ	) 0
12	00P85D1L79012	E A	A K	C	Key top	キートップ	— –
13	00P85D1L79071	E A	A K	C	Key top	キートップ	+ =
14	00P85D1L79072	E A	A K	C	Key top	キートップ	| { = }
15	00P85C8L79031	E A	A K	C	Key top	キートップ	" ° ' ½
16	00P85C8L79032	E A	A K	C	Key top	キートップ	? | / =
17	00P85C9L79010	E A	A K	C	Key top	キートップ	: ;
18	00P85C9L79045	E A	A K	C	Key top	キートップ	^ " ` '
19	00P85B1L79008	E A	A K	C	Key top	キートップ	;
20	00P85B1L79009	E A	A K	C	Key top	キートップ	:
21	00P85B1L79032	E A	A K	C	Key top	キートップ	ç ? é /

SHARP SERVICE MANUAL

CODE : 00ZM0097ETSM4A



ELECTRONIC TYPEWRITERS

NO. 4

MAINTENANCE MANUAL

MODEL ZX-400/500

CONTENTS

1. REGULAR MAINTENANCE TOOL ·· 1
2. TYPICAL REGULAR MAINTENANCE PROCEDURE ···················· 1
3. PARTS REQUIRING LUBRICATION OF GREASING AT THE TIME OF REPLACEMENT······13

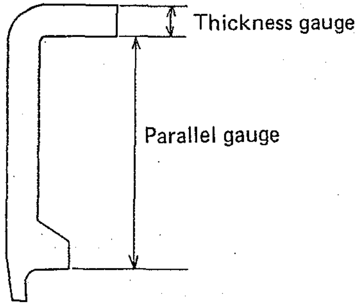
SHARP CORPORATION

NOTICE

The ZX400/500 requires regular maintenance, such as lubrication or greasing, either every year or every 7,500,000 characters of typing (requiring approximately 93 correctable carbon ribbons).
Although part replacement is basically not required at the time of regular maintenance, it may be required depending on the condition of the machine.
This manual describes the required regular maintenance items, along with the parts which may require lubrication at the time of regular maintenance.

1. REGULAR MAINTENANCE TOOLS

(1) Service manual
(2) Service tool kit
(3) Grease (Floil G-311S) (0CHFLOiLG311S)
(4) Ethyl alcohol
(5) Lubrication oil (Idemitsu DTE-15: COiL-1001HC02)
(6) Lubrication oil (Floil 923) (0CHFLOiL-923/)
(7) Cleaning cloth
(8) Special tools for electronic typewriters
- Tension gauge
- Thickness/parallel gauge, which serves the dual purpose as shown at the below (for usage, see the description in the Operation Check).



★ Due to purchasing problems, Floil G-311S is supplied in place of the MOLYKOTE X5-6020 which was specified in Service Manual No. 1.

2. TYPICAL REGULAR MAINTENANCE PROCEDURE

(Maintenance items)
- Lubrication
- Greasing
- Retightening of screws and nuts
- Cleaning
- Operation check

(When starting regular maintenance)
- Remove the platen knobs and the top housing.

★ The parts requiring disassembly are indicated in each maintenance item. For more details of disassembly procedure and precautions, see Service Manual No. 1.

(REGULAR MAINTENANCE ITEM LIST)

Item	Reference No.	Part	Lub. Amount
(2-1) Lubrication DTE-15 (COiL-1001HC02)	A-1	Bearing for platen	
	A-2	Bearing for slide metal	
	A-3	Bearing for cartridge shaft	
(2-2) Geasing Floil G-311S (0CHFLOiLG311S)	D-1	Drive pulley	◎
	D-2	Paper feed gear	◎
	D-3	Cam follower gear [Ribbon cartridge holder]	◎
	D-4	Reel disk drive lever	△
	D-5	Take-up side of the correction tape gear	○
	D-6	Ribbon cartridge holder bearing (right side)	○
	D-7	Ribbon cartridge holder bearing (left side)	○
	D-8	Supply side of the correction tape gear	○
(2-3) Retightening of screws and nuts	B-1	Paper feed unit retention screws (2 places)	
	B-2	Adjustment plate retention screws (2 places)	
	B-3	Adjustment plate retention nuts (2 places)	
	B-4	Slide shaft (M) set screws (2 places)	
	B-5	Eccentric plate retention screws (4 places)	

Item	Reference No.	Part	Lub. Amount
	B-6	Knob sleeve set screws (4 places)	
	B-7	Cam follower retention nut (2 places)	
(2-4) Cleaning	—	Wheel cartridge guide (left, right)	
	—	Platen	
	—	Paper pressure guide	
	—	Carriage and surrounds, and bottom of the frame	
(2-5) Operation check	1	Print quality check	
	1-1	Parallel adjustment	
	1-2	Impact solenoid to platen clearance & adjustment of slide shaft "E"	
	1-3	Ribbon & correction tape lift adjustment	
	2	Correction accuracy check	
	2-1	Typewheel motor encoder alignment adjustment	
	2-2	Impact solenoid adjustment	
	2-3	Wire drawband tension adjustment	
	3	Checking engagement of the ratchet with the ratchet wheel	
	4	Levers operation check	

○: To be lubricated evenly the area with thin lubrication.

△: To be lubricated just a little.

◎: To be lubricated little more than ○.

(2-1) Lubrication (Idemitsu DTE-15 – COil-1001HC02)

The following three bearings use metal which can absorb oil, and require only a few drops of oil onto the bearing surfaces. Where possible, lubricate the contact surfaces in the bearings.

A-1 Platen bearings

Remove the bearings from the platen, and oil the contact surfaces with the platen shaft.

A-2 Slide metal bearing

Remove the indicator, and oil the surface.

A-3 Carriage shaft bearing

Oil the bearing surface while it is secured to the carriage shaft.

Note: Before lubricating the carriage shaft bearing, clean the carriage shaft and bearing surface with a cleaning cloth.

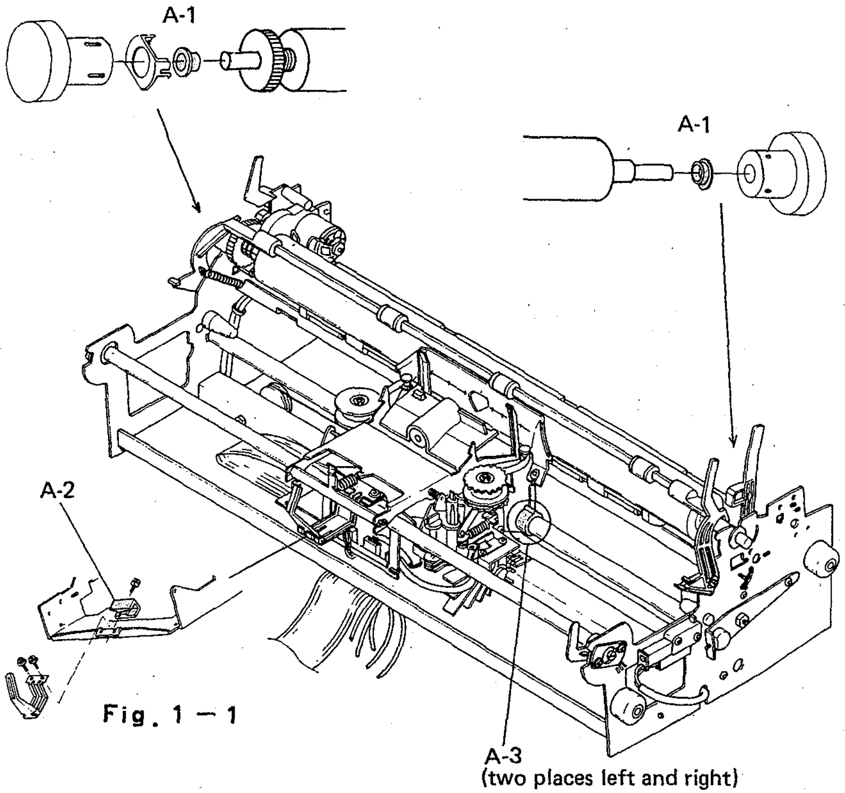


Fig. 1 – 1

(2-2) Greasing (Floi G-311S)

D-1 Greasing the drive pulley (Fig. 2-1)

- While moving the carriage to rotate the pulley, grease all the teeth of the pulley.
- After greasing, continue to move the carriage until the applied grease is spread evenly over the teeth.

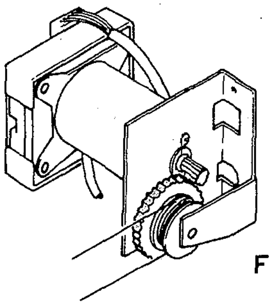


Fig. 2-1

D-2 Greasing the paper feed gear (Fig. 2-2)

- Make sure that the paper feed motor unit is secured to the frame. While rotating the paper feed gear with your finger, grease all the gear teeth.
- After greasing, continue to rotate the paper feed gear until the gear teeth are coated evenly with the grease.

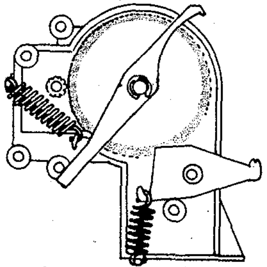


Fig. 2-2

D-3 Greasing the cam follower gear (Fig. 2-3)

- While rotating the cam follower gear, grease the groove through which the cam follower passes, and teeth of the cam follower.

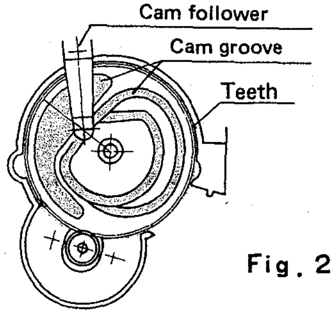


Fig. 2-3

Ribbon cartridge holder

Remove the ribbon cartridge holder from the carriage base, then grease the following sections;

D-4 Reel disk drive lever (Fig. 2-4)

- Grease the two contact surfaces with the ribbon cartridge holder.

D-5 Take-up side of the correction tape gear (Fig. 2-4)

- Grease all the gear teeth.

D-6 Ribbon cartridge holder bearing (right side) (Fig. 2-4)

- Push the support plate (1) to the direction of A, then grease the sliding surface.

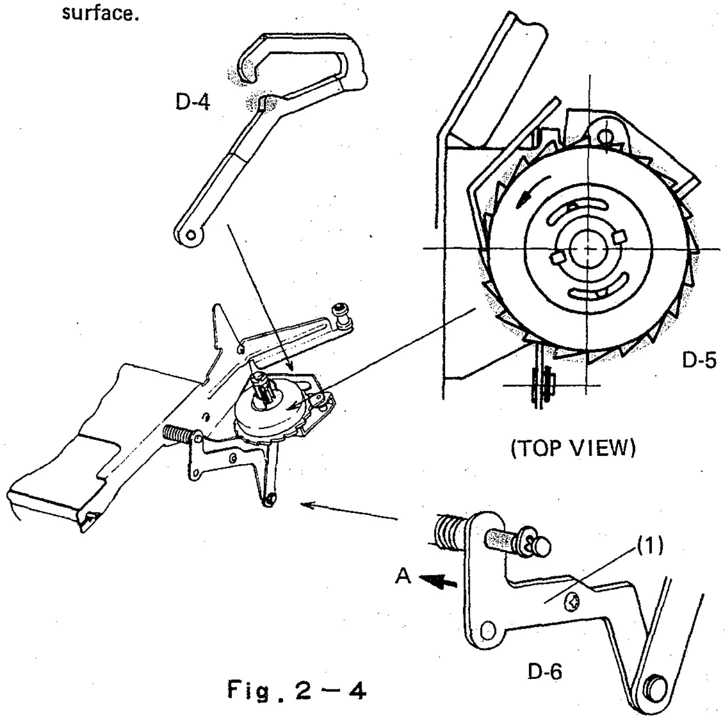


Fig. 2-4

D-7 Ribbon cartridge holder bearing (left side) (Fig. 2-5)

D-8 Supply side of the correction tape gear (Fig. 2-5)

- Grease the teeth on the reverse and inner side of the gear.

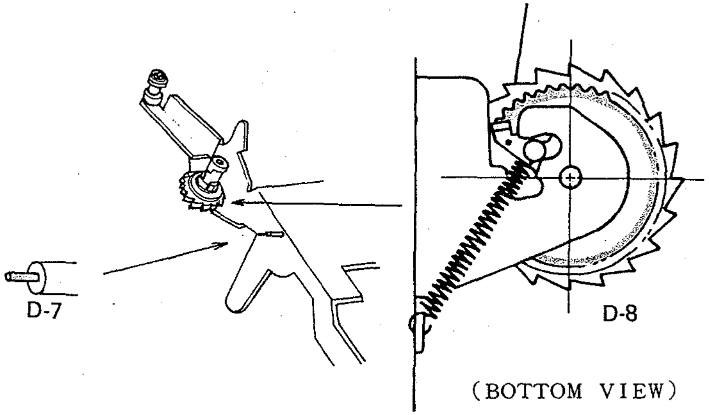


Fig. 2－5

(2-3) Retightening of screws and nuts

The following screws require retightening at the time of regular maintenance:

B-1 Paper feed unit retention screws (2 places)
B-2 Adjustment plate retention screws (2 places)
B-3 Adjustment plate retention nuts (2 places)
B-4 Slide shaft (M) set screws (2 places)
B-5 Eccentric plate retention screws (4 places)
(Figures 2-6, 2-7)

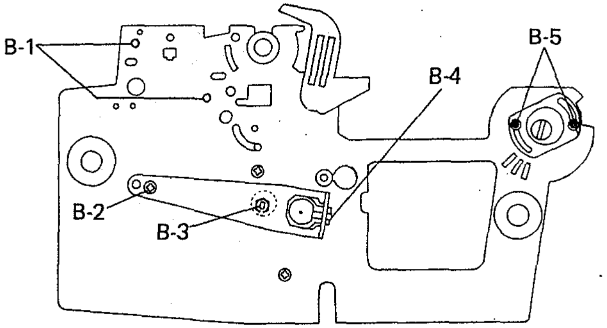


Fig. 2－6

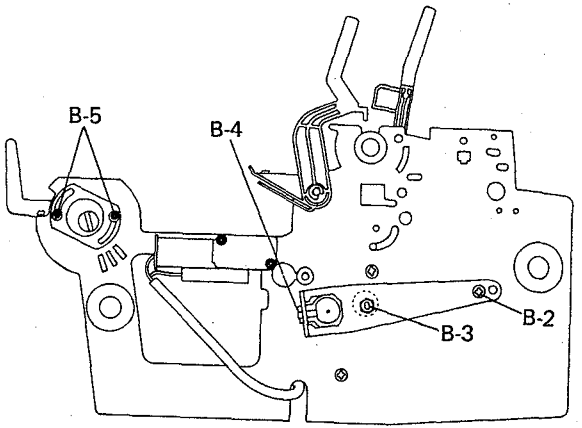


Fig. 2－7

B-6 Knob sleeve set screws (4 places) (Fig. 2-8)

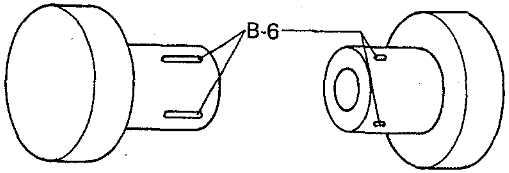


Fig. 2－8

B-7 Cam follower retention screws (2 places) (Fig. 2-9)

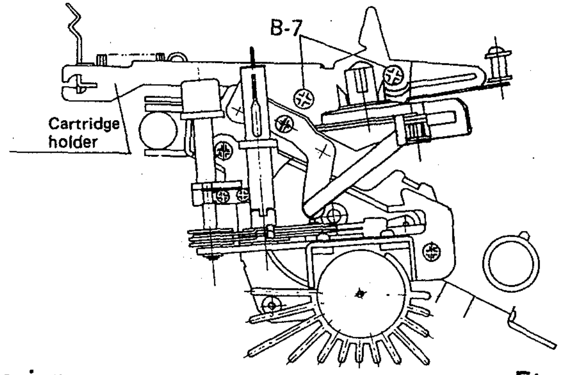


Fig. 2－9

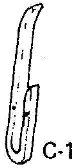
(2-4) Cleaning

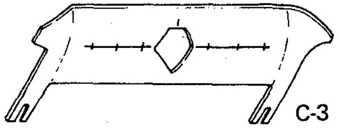
The following parts require cleaning with clean cloth with ethyl alcohol.

C-1 Wheel cartridge guide (left and right)
C-2 Platen

C-3 Paper pressure guide

★ When cleaning these sections, clean carbon deposits off the carriage and the bottom of the frame.





(2-5) Operation check

After completing the lubrication and cleaning items described in the preceding sections, check the following items to verify that the machine is operating properly. Readjustment may be required depending on the result of this check.

★ All the following check items should be executed with the platen knob installed on the platen shaft and the top cover removed.

1. PRINT QUALITY CHECK

If print quality is poor, perform the following check and adjustment:

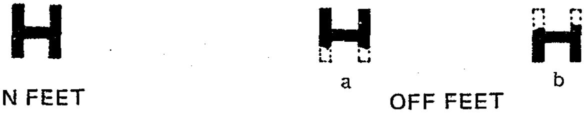
1-1 Parallel adjustments

Level the slide shaft (M) until each type on the type wheel properly strikes the platen surface (Figures A-1, A-2).

(1) Checking print quality

This check should be performed with using one (1) copy typing system which is one carbon paper inserted between original and copy, and type a full line of the letter "H" to check the print tone is even (Use print pressure O and paper thickness 1 for this check).

Print sample:



Print condition	Slide shaft (M) position
ON FEET	Requires no adjustment.
OFF FEET a (bottom half of letter is too light.)	Slide shaft (M) is too low.
OFF FEET b (top half of letter is too light.)	Slide shaft (M) is too high.

Note 1: If the slide shaft (M) position is incorrect a similar condition will be observed as a result of correction:

OFF FEET a ..... Correction of the bottom half of the letter is incomplete.

OFF FEET b ..... Correction for the top half of the letter is incomplete.

Note 2: If the print tone for the letter "H" differs on the left- and right-hand side of the line, see section 1-2 Impact solenoid to platen clearance & adjustment of slide shaft (E).

(2) Adjustment procedure

PREPARATION	a) Manually position the carriage to the center of the main frame (Fig. A-5). b) Loosen the screws (3) retaining the adjustment plates on both sides of the slide shat (M) (Fig. A-3). c) Loosen the nuts (1) for the adjusting screws on both sides of the slide shaft (M) (Fig. A-3).
ADJUSTMENT	d) Insert a parallel gauge into the shaded section (E) on the right-hand side (see Fig. A-5). For insertion method, see Fig. A-4. e) Turn the adjusting screw (2) with long-nose pliers until the clearance between the parallel gauge and platten (distance "A" in Fig. A-4) is 0.8 mm. f) Tighten the nut (1) for the adjusting screws and the three adjustment plate retention screws. Note: When tightening the nuts (1), hold the adjusting screws with long-nose pliers. g) Insert the parallel gauge into the shaded section on the left-hand side (see Fig. A-5), then repeat the above steps d), e) and f) to the left-hand side of the slide shaft.
RECHECK	h) Recheck print quality to see if the print condition is in the ON FEET state.

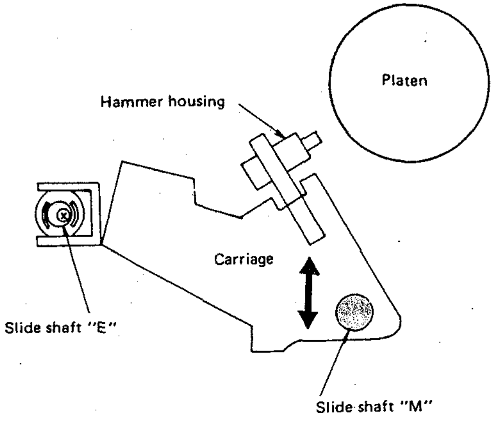
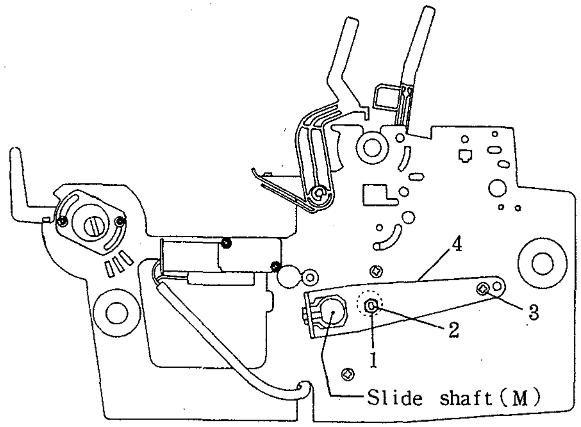

Platen
Hammer housing
Carriage
Slide shaft "E"
Slide shaft "M"

Fig. A — 1


4
3
2
1
Slide shaft (M)

MAIN FRAME OF THE RIGHT SIDE

Fig. A — 2

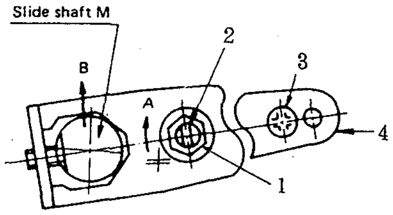

Slide shaft M
2
3
B
A
4
1

Fig. A — 3

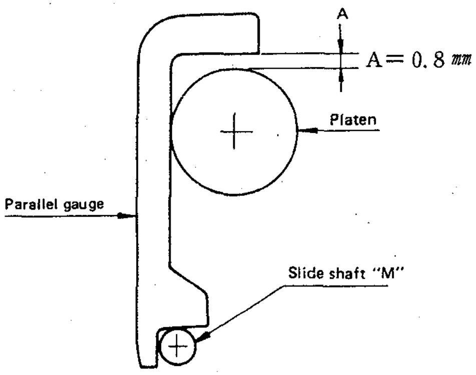

A
A= 0.8 mm
Platen
Parallel gauge
Slide shaft "M"

Fig. A — 4

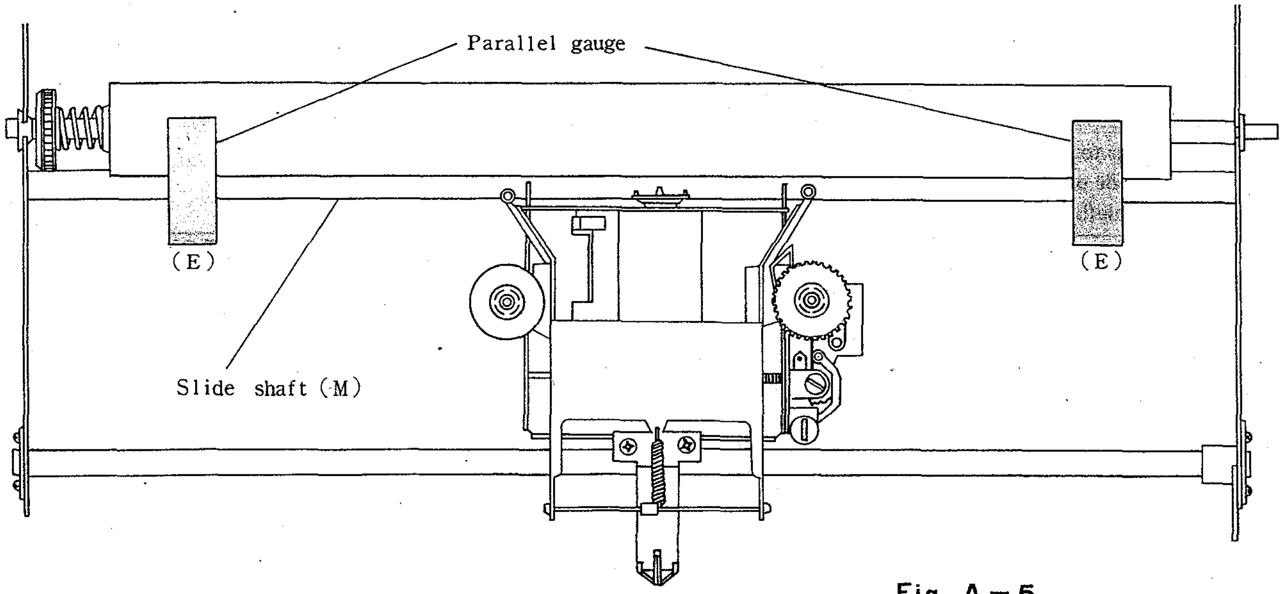

Parallel gauge
(E)
(E)
Slide shaft (M)

Fig. A — 5

1-2 Impact solenoid to platen clearance & adjustment of slide shaft (E)

This adjustment can be accomplished with the slide shaft (E) (see Figures B-1 and B-2). Before proceeding with this adjustment, check if the slide shaft (M) is leveled properly.

(1) Print quality check

This check should be performed with using one (1) copy typing system which is one carbon paper inserted between original and copy, and type a full line of the letter "H" to check the print quality (Use print pressure ○ and paper thickness 1 for this check).

Print samples: (a) **HHHH** ..... HHHH
(b) HHHH ..... **HHHH**

Print quality	Hammer-platen distance
Print tone is too heavy.	Distance between the hammer and platen is too small.
Print tone is too light.	Distance between the hammer and platen is too large.
Print tone is too light on the right-hand side of the line (print sample (a)).	The hammer-platen distance differs on each side (too large on the right-hand side).
Print tone is too light on the left-hand side of the line (print sample (b)).	The hammer-platen distance differs on each side (too large on the left-hand side).

Note 1: If the hammer-platen distance is too large, correction accuracy is less.

Note 2: If print tone differs in the top and bottom halves of each letter, see section 1-1 parallel adjustment.

(2) Adjustment procedure

PREPARATION (disassembly)

a) Remove the paper-bail retention screws, and remove the paper bail (4) from the carriage unit (Fig. B-3).
b) Remove the hammer cover retention screw (9), then remove the hammer cover (8) (Fig. B-4).
c) Set the Copy Control lever (1) in its most forward position (Fig. B-2).

ADJUSTMENT

d) Manually position the carriage to the right stop, then insert a thickness gauge into the shaded section (E) on the right-hand side (see Fig. B-8) by following the method shown in Figures B-5 and B-6. If there is no clearance around the thickness gauge, the distance between the hammer and platen requires no further adjustment.
If the clearance is too large or too small (for the gauge to be inserted), perform the following adjustment:
e) Loosen the screws (3) retaining the eccentric plate (2).
f) Rotate the eccentric plate (2) until there is no clearance is left around the thickness gauge.
g) Tighten the screws (3).
h) Manually position the carriage to the left stop, then insert the thickness gauge into the shaded section (E) on the left-hand side. Adjust the clearance by following the above steps d) to g) (see Fig. B-8).

RECHECK

i) Check the distance between the hammer and platen on the right-hand side again. Make sure that the distance is properly adjusted on both sides.

ASSEMBLY

j) Mount the hammer cover (8).
k) Mount the paper bail (4).

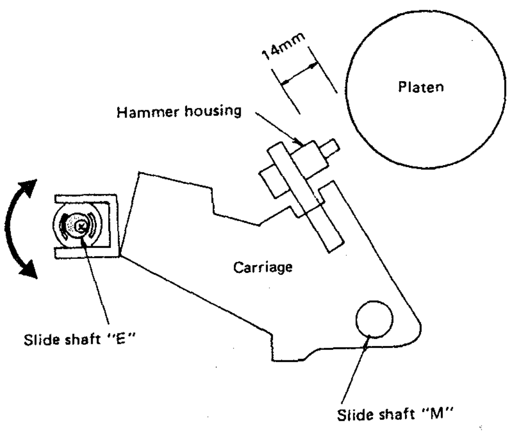

14mm
Platen
Hammer housing
Carriage
Slide shaft "E"
Slide shaft "M"

Fig. B − 1

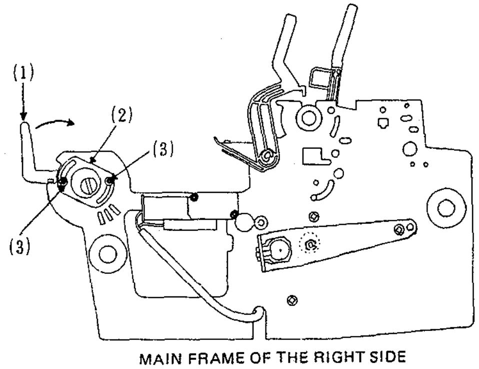

(1)
(2)
(3)
(3)
MAIN FRAME OF THE RIGHT SIDE

Fig. B − 2

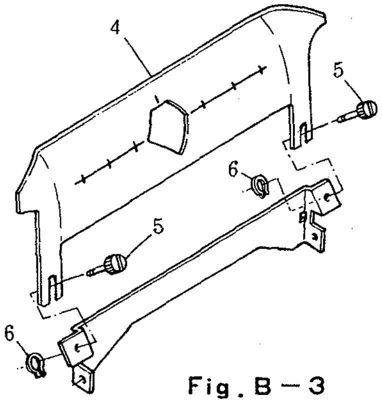


Fig. B − 3

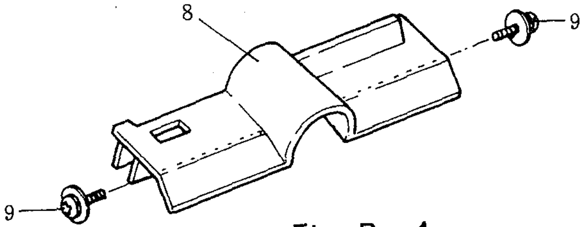


Fig. B − 4

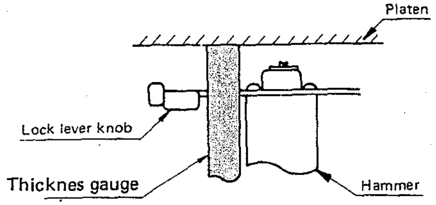

Platen
Lock lever knob
Thicknes gauge
Hammer

Fig. B − 5 TOP VIEW

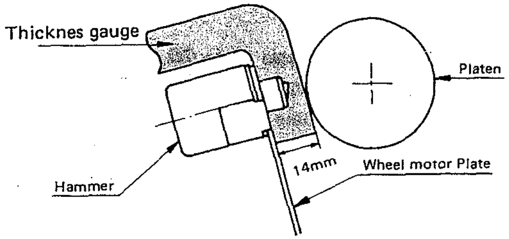

Thicknes gauge
Platen
Hammer
14mm
Wheel motor Plate

Fig. B − 6 SIDE VIEW

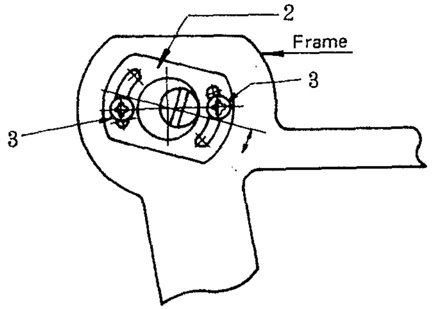


Fig. B − 7

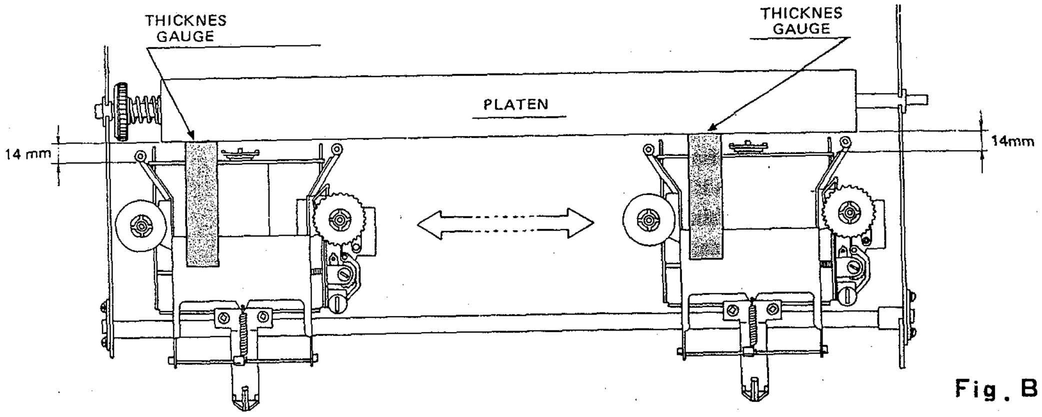
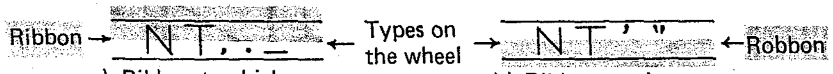

THICKNES GAUGE
THICKNES GAUGE
PLATEN
14 mm
14mm

Fig. B − 8

1-3 Ribbon & correction tape lift adjustment

If the vertical position of the carbon ribbon is incorrect, the types on the wheel will not strike the ribbon properly, resulting in the following:



a) Ribbon too high b) Ribbon too low

Symptom	Cause
(a) Bottom of each character is missed. Commas, periods, or underscopes are missed.	Ribbon is positioned too high.
(b) Top section of each character is missed. Quotation marks or apostrophies are missed.	Ribbon is positioned too low.

(1) Adjustment procedure

ADJUSTMENT	a) Type 10 to 20 underscores one by one. When the ribbon is lifted, its vertical position may have a slight error. Elevate the ribbon cartridge holder at each character position and average the errors of vertical typing positions (Fig. C-1). b) Remove the ribbon cartridge and check to see if the distance between each underscore (clear mark on the ribbon) and the bottom edge of the ribbon is 1 ± 0.5 mm (Fig. C-1). If not, do the following adjustment: c) Loosen the cam follower retention screws (1) (2), then adjust the vertical postion of the ribbon cartridge holder (see Fig. C-2). [If distance A is less than 1 ± 0.5 mm] Lower the ribbon cartridge holder. [If distance A is large than 1 ± 0.5 mm] Elevate the ribbon cartridge holder.
RECHECK	d) Tighten the cam follower retention screws (1) (2), then check the distance A again by repeating the above steps (a) and (b). If needed, repeat the adjustment until the distance is 1 ± 0.5 mm.

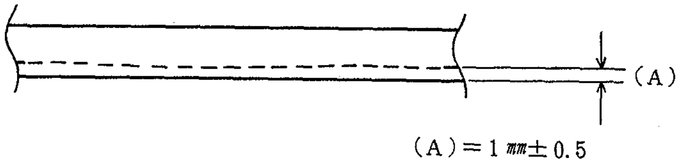


Fig. C－1

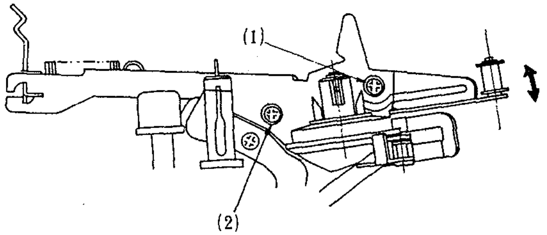


Fig. C－2

2. CORRECTION ACCURACY CHECK

If correction accuracy is poor, perform the following check and adjustment:

Note: Poor correction accuracy may also be due to the slide shaft (M) or (F) which requires adjustment (see sections 1-1 and 1-2 in Print Quality Check).

2-1 Type wheel motor encoder alignment adjustment.

Rotate the encoder until each type on the daisy wheel stops at the proper print position and is properly struck by the hammer.

If this adjustment is incorrect, the hammer will not strike each type properly, which may cause correction errors or skewed characters.

(Adjustment procedure)

PREPARATION CHECK

a) Switch the typewriter on (the underscore "–" will stop at the print position).

b) Press the portion (A) on the hammer to push it forward, and check to see if the hammer strikes the "V" locator on the wheel (Fig. D-1).
If not, do the following adjustment:

ADJUSTMENT

c) Place the keyboard in the vertical position (secure it to the hook on the bottom cabinet).

d) Loosen the four screws (1) retaining the encoder (Fig. D-2).
- Lower 2 screws – Loosen while the wheel is left mounted.
- Upper 2 screws – Loosen after pressing the lock tab to remove the type wheel.

Note: Use care to avoid scratching the encoder board or slit plate.

e) Rotate the encoder until the hammer properly strikes the "V" locator on the type wheel.

f) Tighten the four encoder retention screws (1).

RECHECK

g) Temporarily switch the typewriter off, then switch it on again, and check again in the hammer properly strikes the "V" locator.

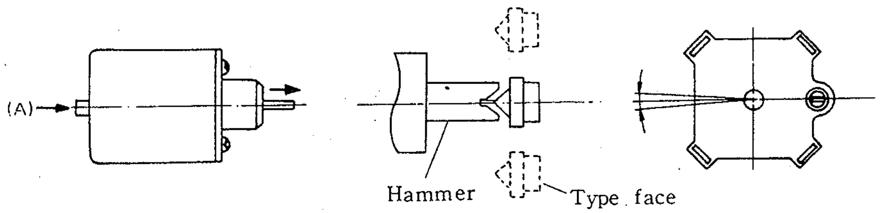


Fig. D – 1

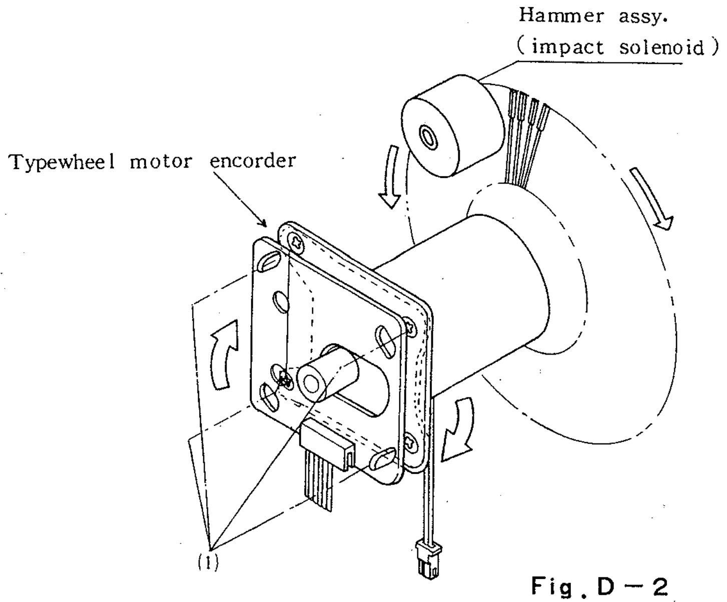


Fig. D – 2

2-2 Impact solenoid adjustment

Rotate the impact solenoid until the hammer properly strikes each type on the wheel (Fig. E-1). If this adjustment is incorrect, the hammer will not strike each type properly, which may cause correction errors or skewed characters.

Note: Before proceeding with this adjustment, make sure that the wheel motor is properly adjusted to its zero position.

(Adjustment Procedure)

CHECK

a) Print ruled lines (each of which spans a few typing lines) at both side margins and the center (Fig. E-2).

b) Check to see if each of the printed ruled line appears as a continuous single vertical line as shown in Fig. E-2 (A).
If each vertical segment has a skew as shown in Fig. E-2 (B) or (C), do the following adjustment:

ADJUSTMENT

c) Loosen the impact solenoid retention screws (1), hold the portion (c) of the impact solenoid with long-nose pliers and rotate it until the hammer skew is corrected.

RECHECK

d) Tighten the impact solenoid retention screws (1).

e) Repeat the above step a) to print ruled lines and, if needed, do the same adjustment until continous vetical ruled lines as shown in Fig. E-2 (A) are obtained.

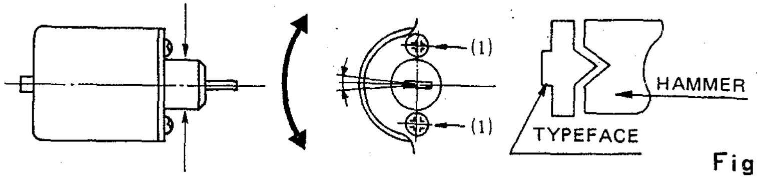


Fig. E－1

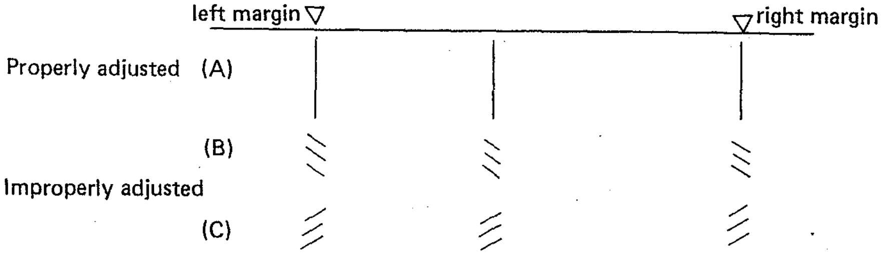


Fig. E－2

2-3 Wire Drawband tension adjsutment

Refer to the figure below (Fig. F-1);

CHECK

a) Be sure the carrier is positioned at the center of the drawband travel as illustrated.

b) Hook the tension gauge to the bottom portion of the center of the wire.

c) With the gauge reading 300 grams, check to see that the drawband is deflected 4.8 to 5.5 mm (E).

ADJUSTMENT

d) If its not within this range, loosen nut (1) and turn part (2) with a screwdriver to adjust the wire tension as described in c) above.

★ Correction is still no good even completed of (1-1) Print Quality Check and (1-2) Correction accuracy Check, try to proceed the Back Lash Adjustment.

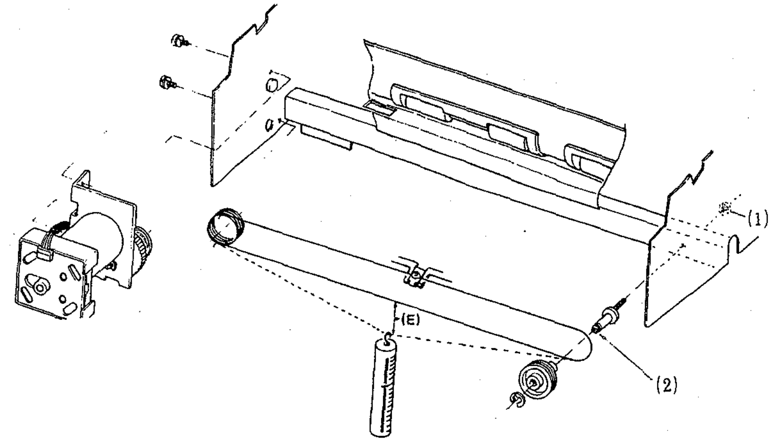


Fig. F－1

3. CHECKING ENGAGEMENT OF THE RATCHET WITH THE RATCHET WHEEL

Refer to the figure below (Fig. G1, G2 and G3);

If the ratchet does not properly engage the ratchet wheel, it will affect paper feed and correcting errors up the page in correction memory as the teeth won't feed the proper amount to cause the print wheel to line up perfectly with typed text.

CHECK

a) Rotate the paper feed gear (1) located at Paper feed unit until the ratchet is at it's lowest point. Check to see if the ratchet (2) is correctly engaged between the teeth or the ratchet wheel (3).

ADJUSTMENT

b) When the engaged position is not correct, loosen 2 screws (4) as shown in the illustration below. These screws fasten the paper feed assembly to the main printer frame on the left side.

c) Insert a screwdriver into the adjustment slot and turn in the direction that will cause the ratchet to engage between the teeth of the ratchet wheel.

d) After adjusting, tighten the 2 screws (4).

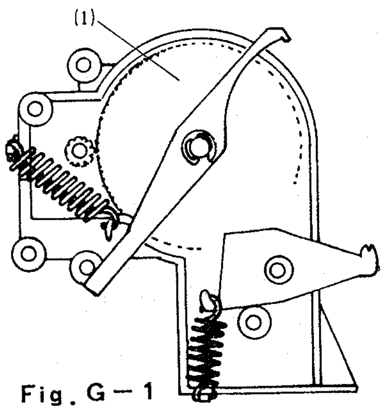


Fig. G-1

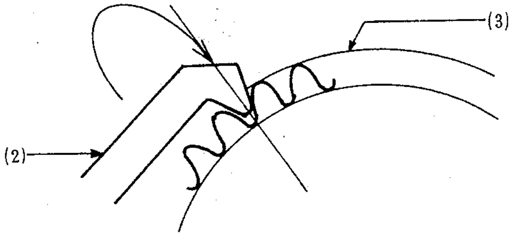


Fig. G-2

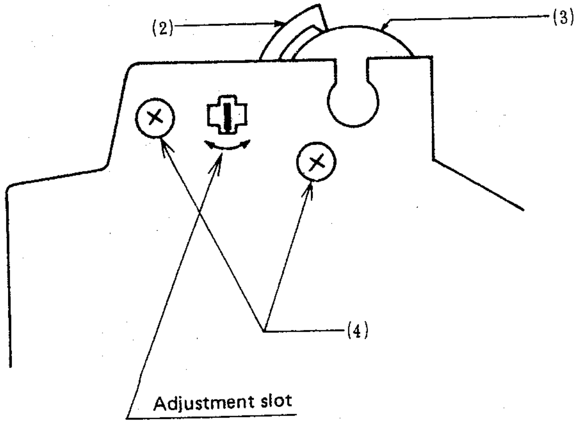


Fig. G-3

4. LEVER OPERATION CHECK

Check if each lever (Fig. H-1) operates properly. If levers (1), (2) or (4) move strangely, grease the following points:

a) Paper free lever (1)
   Grease (Floil G-311S) the spring (F) mounting shaft. (See section E-10 on page 14.)

b) Paper release lever (2)
   Grease (Floil G-311S) the spring (R) mounting shaft, release link, and paper feed roller spring. (See Items E-8, E-9, and E-10 on page 14.)

c) Adjusting lever (4)
   Grease (Floil G-311S) the print compression detent. (See item E-11 on Page 14.)

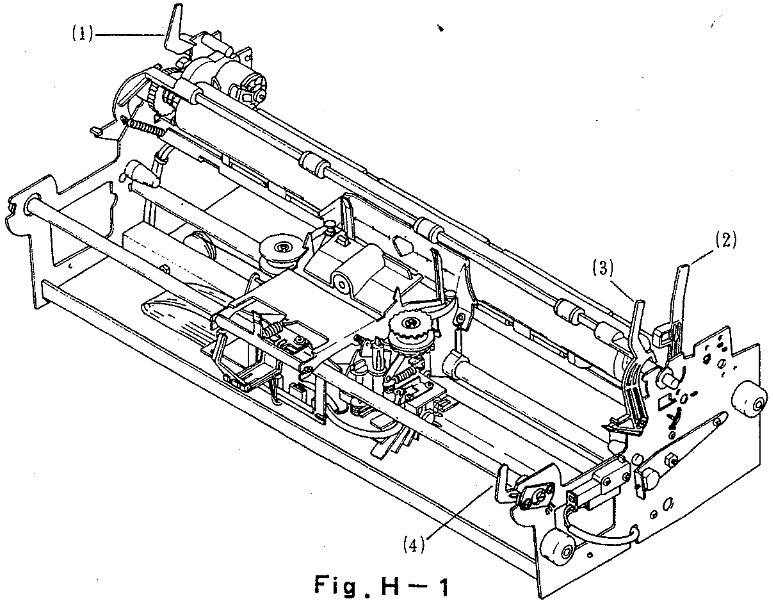


Fig. H-1

3. PARTS REQUIRING LUBRICATION OF GREASING AT THE TIME OF REPLACEMENT

While lubrication or greasing specified in this section is not required at the time of regular maintenance, it should be done when any of the following parts is repalced during repair or regular maintenance.

(Parts requiring lubrication or greasing after replacement)

No.	Part name	Lubrication oil	Lub. amount
	3-1 Paper feed unit		
E-1	Paper feed gear	Floil G-311S	◎
E-2	Paper feed gear shaft	Floil G-311S	○
E-3	Ratchet A shaft	Floil G-311S	○
E-4	Both ends of detent roller	Floil G-311S	△
	3-2 Printer main frame		
E-5	Idler pulley shaft	Floil G-311S	○
E-6	Drive pulley shaft E	Floil G-311S	○
E-7	Roller holder A shaft	Floil G-311S	△
E-8	Bottom of paper feed roller spring	Floil G-311S	○
E-9	Release link	Floil G-311S	△
E-10	Spring (F and R) mounting shaft	Floil G-311S	○
E-11	Print compression detent	Floil G-311S	○
	3-3 Printer carridge base		
E-12	Lock lever, spacer	Floil G-311S	◎
E-13	Tip of carriage base lock	Floil G-311S	○
E-14	Ends of bruch contact and slip ring electrodes	Floil 923	△
E-15	Reverse side of cam follower gear	Floil G-311S	◎
E-16	Ribbon take-up gear	Floil G-311S	○
E-17	Cam holder case	Floil G-311S	△
E-18	Release lever and stopper shafts	Floil G-311S	△
E-19	Ribbon feed pawl guide	Floil G-311S	○
	3-4 Platen		
E-20	Clutch spring	Floil G-311S	○

○: To be lubricated evenly to area with thin lubrication.
△: To be lubricated just a little.
◎: To be lubricated little more than ○.

3-1 Paper feed unit

E-1 Paper feed gear
- Ratchet B shaft

E-2 Paper feed gear shaft
E-3 Ratchet A shaft
E-4 Both ends of detent roller
- Keep grease out of the roller surface.

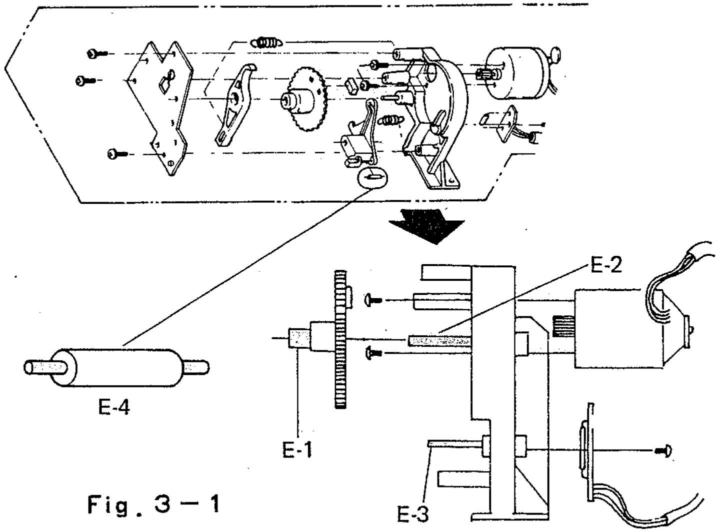


Fig. 3 — 1

3-2 Printer main frame

E-5 Idler pulley shaft
- Not needed for machines with a production date of May, 1983 or later.

E-6 Drive pulley shaft E

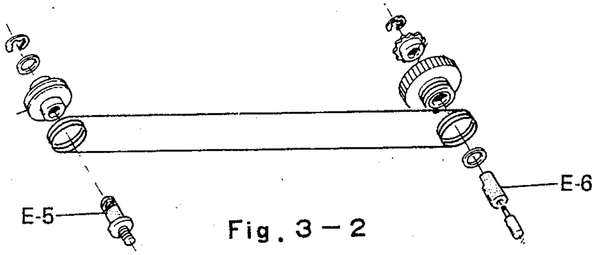


Fig. 3 — 2

E-7 Roller holder A shaft

E-8 Bottom of paper feed roller spring

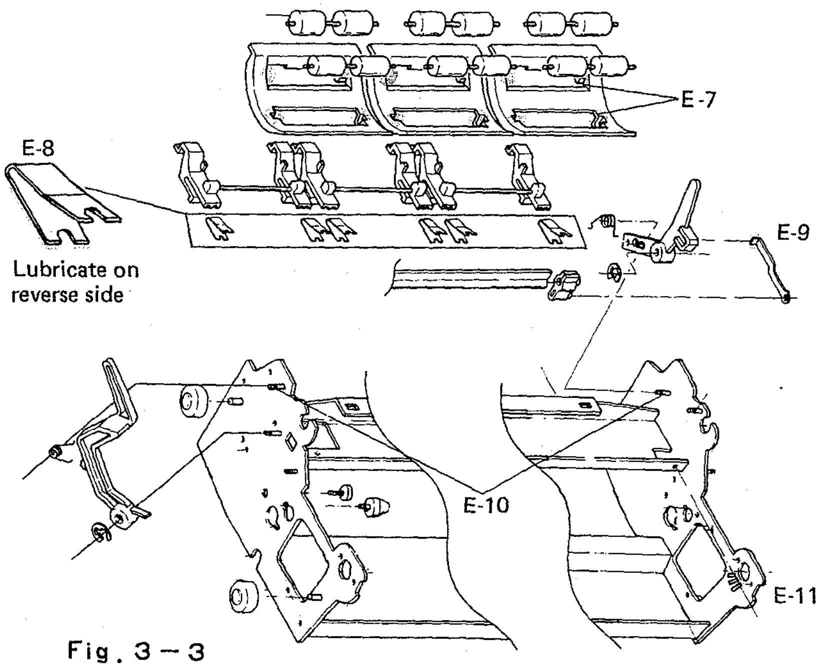
- Contact surface with the torque bar

E-9 Release link

- Link with the paper release lever

E-10 Mounting shafts for paper feed lever's spring F and paper release lever's spring R

E-11 Print compression detent



Lubricate on reverse side

Fig. 3 – 3

3-3 Printer carridge base

E-12 Sliding parts fo the lock lever and spacer.

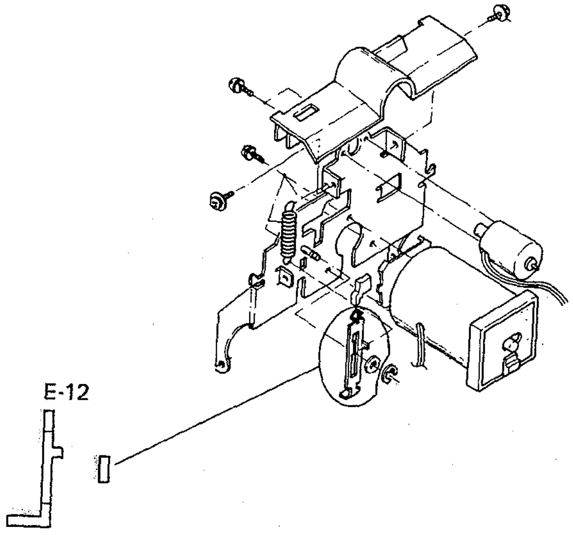


Fig. 3 – 4

E-13 Top of carriage base lock

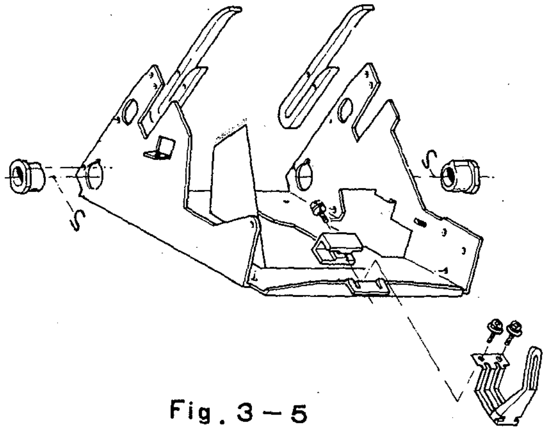


Fig. 3 – 5

E-14 End of brush contact and slip ring electrodes
- Apply Floil 923 evenly on the contact surface.
- Keep grease out of any portion other than the contact surface.

E-15 Reverse side of cam follower gear

E-16 Teeth of ribbon take-up gear

E-17 Cam holder case
- Contact with ribbon feed shaft

E-18 Release lever and stopper shafts

E-19 Ribbon feed pawl guide

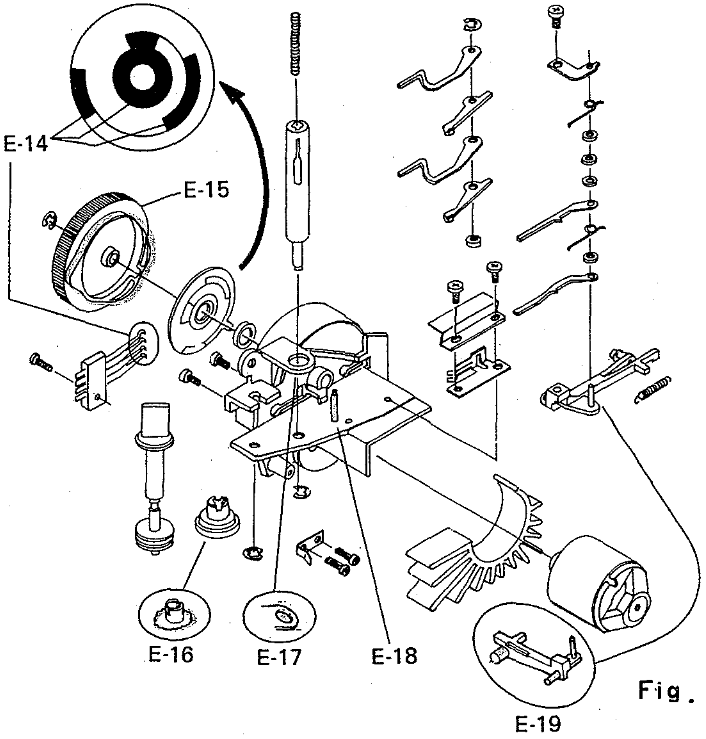


Fig. 3 − 6

3-4 Platen

E-20 Clutch spring
- Contact with ratchet wheel gear

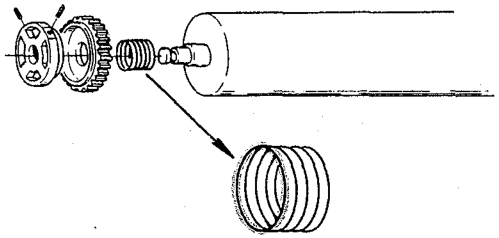


Fig. 3 − 7

SHAR-02881

SHARP SERVICE-HANDBUCH

CODE: 00ZM91ETSM1A

ELEKTRONISCHE SCHREIBMASCHINEN

NR. 1

MODELL ZX-400/ZX-500

INHALTSVERZEICHNIS

I. BESCHREIBUNG DER MECHANISCHEN BAUGRUPPEN, DEREN AUSBAU, ZERLEGUNG UND ZUSAMMENBAU

II. BESCHREIBUNG DER PLATINEN, DEREN AUSBAU UND AUSTAUSCH

III. EINSTELLUNGEN

IV. ERSATZTEILLISTE

SHARP CORPORATION

2881

EINLEITUNG

Dieses Service-Handbuch ist als Hilfe für den Wartungstechniker bei der Instandsetzung von Schreibmaschinen der Serie ZX bestimmt. Es enthält alle Informationen, die zur Instandsetzung der Mechanikteile erforderlich sind, sowie Anleitungen zur Spannungsprüfung und zum Ausbau der Leiterplatinen. Die Schaltungsbeschreibung ist in dem separat erhältlichen Elektronikservice-Handbuch enthalten. Nähere Einzelheiten über die Reparatur von Leiterplatinen sind dem "Sharp Policies and procedures manual" (Richtlinien und Bestimmungen) zu entnehmen. Dieses Service-Handbuch Nr. 1 ist in 4 Teile untergliedert.

Teil 1 ....Beschreibung der mechanischen Baugruppen, deren Ausbau, Zerlegung und Zusammenbau
Teil 2 ....Beschreibung der elektronischen gedruckten Schaltungen, deren Ausbau und Austausch
Teil 3 ....Einstellungen
Teil 4 ....Ersatzteilliste

VORSICHTSMASSNAHMEN

1. Vor dem Ausbau von Teilen stets Netzstecker ziehen.
2. Platinen nicht bei eingeschaltetem Gerät ein- oder ausbauen.
3. Beim Lösen von Steckverbindungen stets den Stecker anfassen und nicht am Kabel ziehen, da dieses leicht reißen kann.
4. Das Drahtseil (Schlitten-Zugband) hat einen Kunststoffüberzug, der leicht verkratzen kann. Beim Austausch daher sehr sorgfältig vorgehen.
5. Beim Reparieren eines mechanischen Bauteils, die einzelnen Teile nach Vorschrift ölen.
6. Platinen vor statischer Aufladung schützen. Darauf achten, daß die Batterien nicht kurzgeschlossen werden.

WERKZEUGE

Zur Wartung und Instandsetzung der ZX-400 und 500 sind neben den üblichen nach folgende Spezialwerkzeuge erforderlich.

Nr.	Teil-Code	Name	Anzahl
1	UKOGM1068CSZZ	Lupe mit 15-facher Vergrößerung	1
2	UKOGM1069CSZZ	Federwaage (500 g)	1
3	UKOGM1070CSZZ	Gabelschlüssel 3 mm	1
4	UKOGM1071CSZZ	Gabelschlüssel 5 mm	1
5	UKOGM1072CSZZ	Gabelschlüssel 10 mm	1
6	UKOGM1074CSZZ	Dickenmeßlehre 14 mm	1
7	UKOGM0075CSZZ	Dickenmeßlehre 0,1 mm bis 5 mm	1
8	UKOGM1073CSZZ	Federhaken	1
9	00PCB-IG102A/	Tastenabzieher	1
10	00PCB-1G102//	Ausbauwerkzeug f.Tastenschalter	1
11	UKOGM1075CSZZ	Parallel-Lehre	1
12	UKOGM1076CSZZ	Zugbandhalter	1
13	DUNT-5070BCZZ	Service-Prüfgerät 1	1
14	DUNT-5071BCZZ	Service-Prüfgerat 2	1

Die Schreibmaschinen ZX-400 und 500 bestehen aus 6 Hauptbaugruppen:

1. **Gehäuse Oberteil**
   Unterteil

2. **Netzteil Primärseite**
   Sekundärseite

3. **Schreibwerk - Schlitten**
   Walze
   Papiervorschub
   Schlitten-Antriebsmotor
   Schreibwerk-Hauptrahmen

4. **Tastatur - Tasten-Dekoder**
5. **Hauptplatine**
6. **Anzeigeplatine * (nur bei der ZX-500)**

TECHNISCHE DATEN

	ZX-500	ZX-400
SCHREIBWERK		
Schreibgeschwindigkeit	20 Zeichen/s	20 Zeichen/s
Typenrad	112 Zeichen in leicht austauschbarer Kassette	
Schritteilungen	10, 12, 15 Zeichen/Zoll Proportionalschrift	
MAXIMALER PAPIERDURCHLASS	432 mm	
SCHREIBBREITE	335 mm	
FARBBANDSYSTEM	Korrigierbares Karbonband für ca. 80000 Anschläge Korrigierbares Karbonband für ca. 300000 Zeichen Mehrfach-Gewebeband für ca. 500000 Zeichen	
KORREKTURBAND	Lift-Off für korrigierbares Karbonband (ca. 2000 Zeichen) Abdeckkorrekturband für Gewebe- und Mehrfachband (ca. 2000 Zeichen)	
TASTATUR		
Alphanumerische Schreibtasten	47 oder 48	
Schreibbare Zeichen	112	
Dauerfunktionstasten	Rückschrittaste, Leerschrittaste, Halbzeilenschaltung vorwärts, Halbzeilenschaltung rückwärts, Zeilenschaltung, Korrekturtaste. Alle anderen Zeichen in Verbindung mit Repeat-Funktion.	Rückschrittaste, Leerschrittaste, Halbzeilenschaltung vorwärts, Halbzeilenschaltung rückwärts, Zeilenschaltung, Korrekturtaste. Alle anderen Zeichen in Verbindung mit Repeat-Funktion.
FUNKTIONSTASTEN	29 Tasten Randauslöser Linker Randsteller Rechter Randsteller Tabulator Setztaste Tabulator Löschtaste Tabulatortaste Dezimaltabulator Halbschritt-Taste Repeat-Taste Rückschrittaste Korrektur Einrücken Express Relocate Halbzeilenschaltung vorwärts Halbzeilenschaltung rückwärts Vorwärts Texteinfügung Löschung Speicher Seitenformat Tabellengestaltung Zentrieren Tastatur I oder II mit Umschaltung und Umschaltfeststeller Leerschritt Zeilenschaltung Codiertasten Unterstreichen durchgehend wortweise Fettdruck Vertikal Tab. setzen Absatz einrücken Randzoneneinstellung Automat. Ausdruck von Speicherinhalt Formularende	23 Tasten Randauslöser Linker Randsteller Rechter Randsteller Tabulator Setztaste Tabulator-Löschtaste Tabulatortaste Dezimaltabulator Halbschritt-Taste Repeat-Taste Rückschrittaste Korrektur-Rückschritttaste Einrücken Express Relocate Halbzeilenschaltung vorwärts Halbzeilenschaltung rückwärts Zentrieren Tastatur I oder II Zeilenschaltung Umschaltung mit Feststelltaste Leerschritt Codiertasten Unterstreichen durchgehend Unterstreichen fett Vertikaltabulatorsetzung fett Texteinfügung Randzoneneinstellung Automat. Korrekturspeicherbeginn
SPEICHER		
Automatische Korrekturzone	400 Zeichen oder 6 Zeilen	200 Zeichen oder 3 Zeilen
Zeilenformaspeicher	Insgesamt 3 - je einer für 10, 12, 15 Zeichen/Zoll	
Seitenformat/Textspeicher	Maximal 10 Seitenformate/maximal 26 Textspeicher, insgesamt 1024 Byte	
Tabellengestaltung	1 Zeile	
DISPLAY		
Typ	Blaue Leuchtanzeige mit rotem Cursor	
Kapazität	32 Zeichen	
Zeichenmatrix	5 x 12 Punkte + rote Cursor-Reihe	
STROMANSCHLUSS		
Leistungsaufnahme	ca. 85 W	ca. 75 W
Betriebstemperatur	5° bis 35°C	
Aufbewahrungstemperatur	-25° bis +60°C	
Rel. Luftfeuchtigkeit	10 bis 85%	
ABMESSUNGEN	564 (B) x 195 (H) x 490 (T) mm	
GEWICHT	ca. 20 kg	ca. 18,5 kg

I. BESCHREIBUNG DER MECHANISCHEN BAUGRUPPEN, DEREN AUSBAU, ZERLEGUNG UND ZUSAMMENBAU

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1. GEHÄUSE

1.1. ABNEHMEN DES GEHÄUSEOBERTEILS

(Fig. A-1)

a) Darauf achten, daß die Papierendanzeige (E) und die Papierstütze (F) nach unten geklappt und eingerastet sind.

b) Die Farbbandabdeckung (I) abheben. Dabei darauf achten, daß die Blendschutzscheibe geschlossen (unten) ist.

c) Die Walzenknöpfe (H) mit Hilfe eines 2mm-Imbusschlüssels ausbauen.

d) Die Maschine hochkant auf die Rückseite stellen und die 3 Kreusschlitzschrauben (A) am Boden der Maschine herausdrehen (je eine in jeder Ecke und eine in der Mitte).

e) Die Maschine wieder normal stellen und die beiden Kreuzschlitzschrauben (C) auf der Innenseite der Farbbandabdeckung herausdrehen.

Der Wiederzusammenbau geschieht in umgekehrter Reihenfolge.

HINWEIS: Beim Anbringen der Walzenknöpfe darauf achten, daß der Knopf mit den Madenschrauben in den Schlitzen auf der linken Seite der Walze angebracht wird. Beim rechten Knopf befinden sich die Madenschrauben in runden Bohrungen.

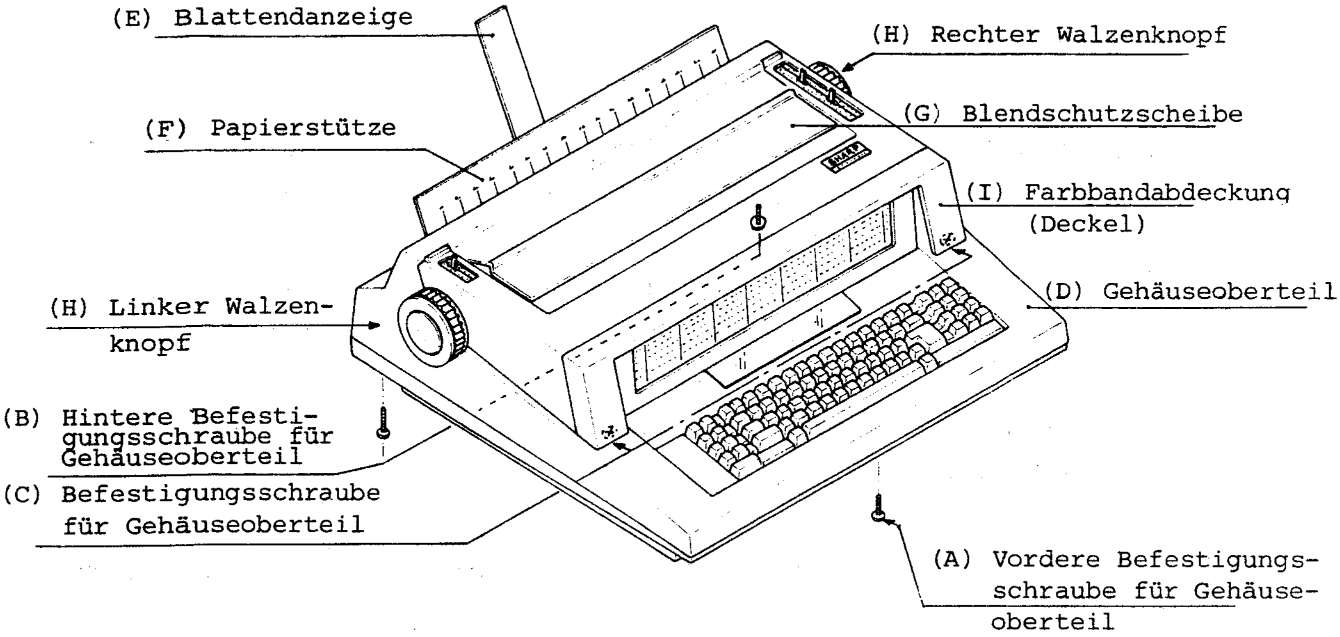
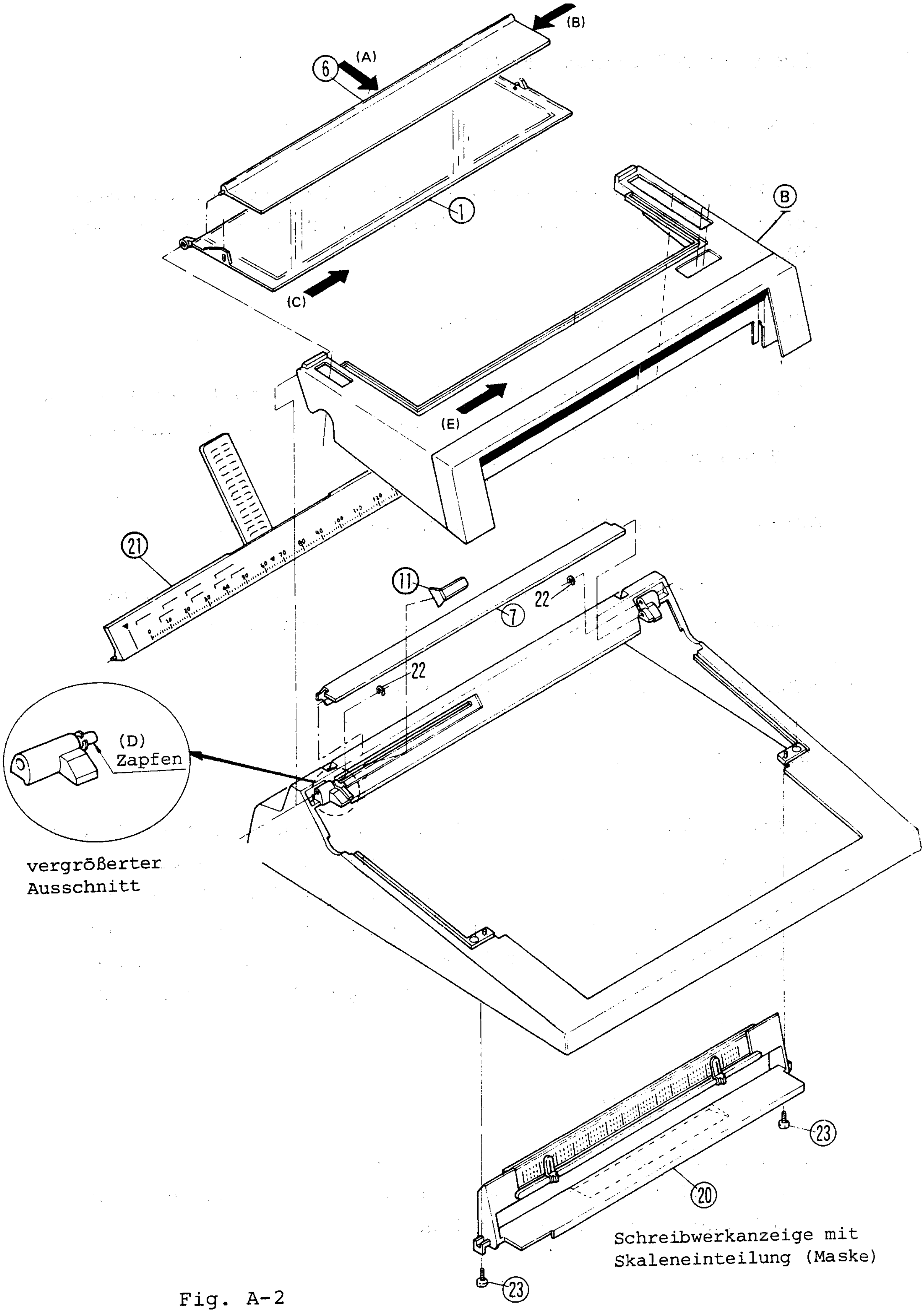

(E) Blattendanzeige
(F) Papierstütze
(H) Rechter Walzenknopf
(G) Blendschutzscheibe
(I) Farbbandabdeckung (Deckel)
(D) Gehäuseoberteil
(H) Linker Walzenknopf
(B) Hintere Befestigungsschraube für Gehäuseoberteil
(C) Befestigungsschraube für Gehäuseoberteil
(A) Vordere Befestigungsschraube für Gehäuseoberteil

Fig. A-1


(B)
(A)
6
1
B
(C)
(E)
21
11
22
7
22
(D)
Zapfen
23
20
23

vergrößerter Ausschnitt

Schreibwerkanzeige mit Skaleneinteilung (Maske)

Fig. A-2

1.2. ZERLEGEN DES GEHÄUSEOBERTEILS

(Fig. A-2)

Die Zerlegung des Gehäuseoberteils hängt vom entsprechenden Schreibmaschinenmodell ab und wird wie folgt durchgeführt:

AUSBAU DER BLENDSCHUTZSCHEIBE (6)

a) Die BLendschutzscheibe (6) anheben und in Pfeilrichtung (B) drücken. Die Scheibe dann aus den Aussparungen im Schallschutzdeckel (1) herausziehen.

AUSBAU DES SCHALLSCHUTZDECKELS (1)

a) Den Schallschutzdeckel in Pfeilrichtung (C) schieben und von den Zapfen der Farbbandabdeckung lösen.

1.3. AUSBAU DER FARBBANDABDECKUNG (B)

(Siehe Fig. A-2)

a) Die Farbbandabdeckung öffnen und den Drehzapfen (D) auf der linken Gehäuseseite mit einer Zange nach rechts ziehen. Dann die linke Seite der Abdeckung leicht anheben und durch Schieben nach rechts vom Drehzapfen lösen. Beim Abheben der Abdeckung auf der rechten Seite darauf achten, daß die rechts angeordnete Feder nicht verlorengeht.

1.4. AUSBAU DER PAPIERSTÜTZE (21)

a) Papierstütze in der Mitte greifen, leicht biegen und die Zapfen an den beiden Enden aus den Bohrungen des Gehäuseoberteils herausziehen.

1.5. AUSBAU DER SKALA (MASKE) (20)

a) Das Gehäuseoberteil umdrehen, die beiden Befestigungsschrauben für die Meßskala (32) herausdrehen und die Skala abnehmen.

a) Die beiden Laschen (7) an den Seiten des Papierableiters in umgekehrter Lage des Gehäuseoberteils zusammendrücken, und den Papierableiter nach oben herausziehen.

HINWEIS: Der Zusammenbau wird in umgekehrter Reihenfolge durchgeführt.

1.6. AUSBAU DES PAPIERABLEITERS UND RADIERTISCHES (7)

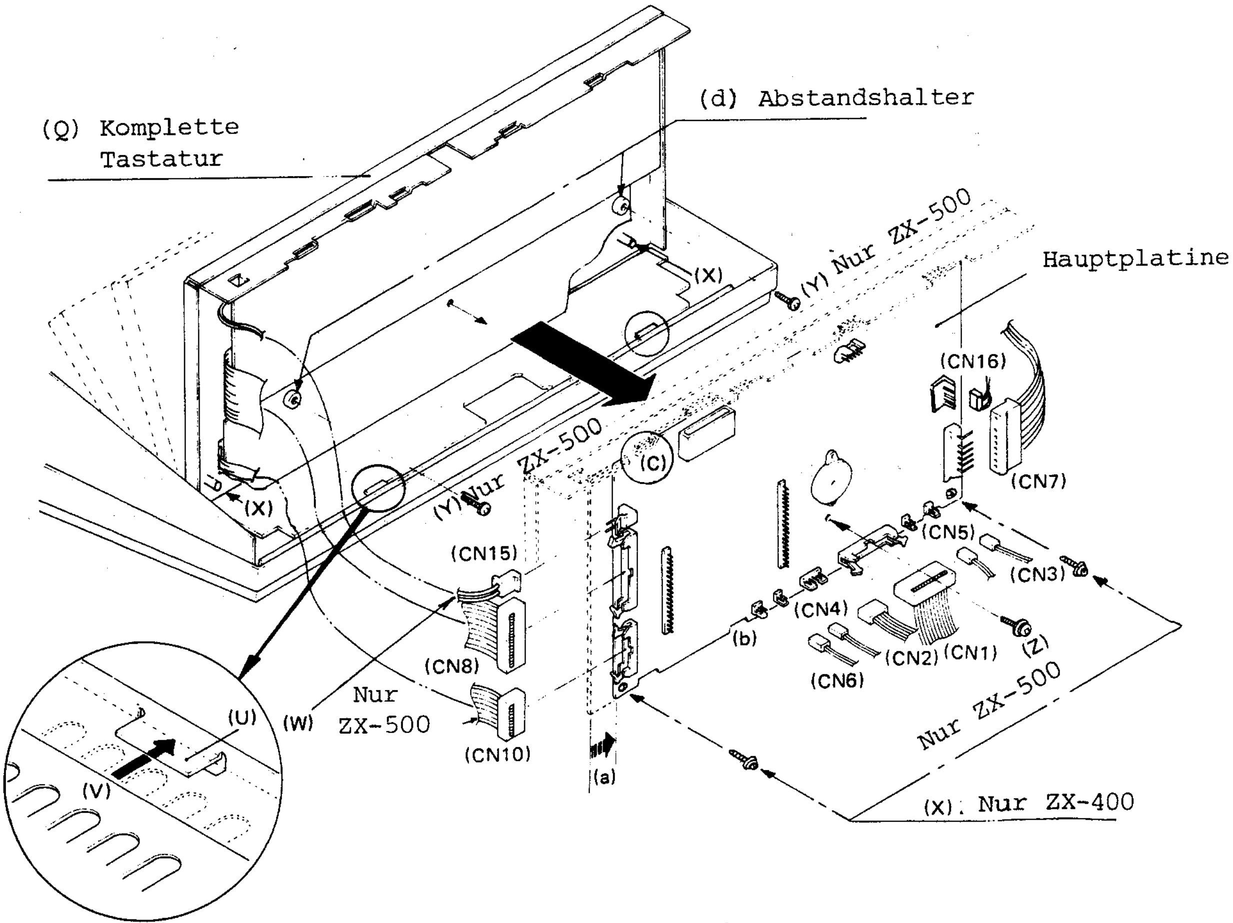

(Q) Komplette Tastatur
(d) Abstandshalter
(X)
(Y) Nur ZX-500
Hauptplatine
(CN16)
(CN7)
(C)
(Y) Nur ZX-500
(X)
(CN15)
(CN5)
(CN3)
(CN4)
(b)
(CN8)
(CN2)
(CN1)
(Z)
(CN6)
Nur ZX-500
(U)
(W)
Nur ZX-500
(V)
(CN10)
(a)
(X). Nur ZX-400

Fig. A-3

2. AUSBAU DER TASTATUR

(Siehe Fig. A-3)

a) Das gesamte Tastenfeld (Q) nach hinten kippen und hochkant auf den Rahmen stellen, wie Fig. A-3 zeigt.

b) Die Steckverbinder (CN1) bis (CN8), CN10, CN15 und CN17 abziehen. (Die Steckverbinder CN10 und CN15 sind nur bei Modell ZX-500 vorhanden)

c) Siehe Fig. A-4.
Die Masseleitung (J7) abklemmen.

d) Das Tastenfeld herausnehmen.

Der Zusammenbau geschieht in umgekehrter Reihenfolge.

3. AUSBAU DES SCHREIBWERKS AUS DEM GEHÄUSEUNTERTEIL

Schritt A wird auf Fig. A-4 erläutert

a) Die Masseleitungen (J1) bis (J4) abklemmen.

b) Den Rahmen an beiden Seiten fassen und aus dem Gehäuseunterteil herausheben.

ACHTUNG: Beim Herausheben des Schreibwerks darauf achten, daß der Netzschalter und dessen Abdeckung nicht beschädigt werden.

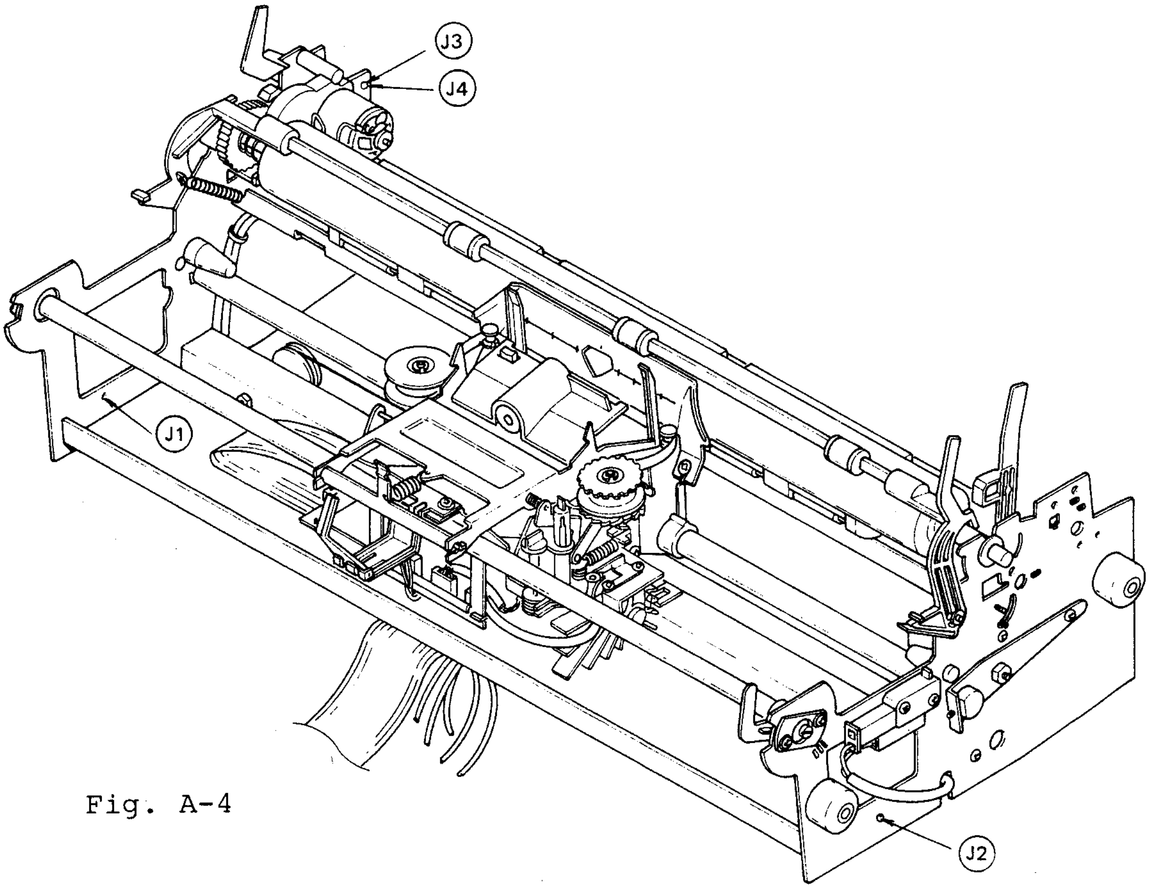


Fig. A-4

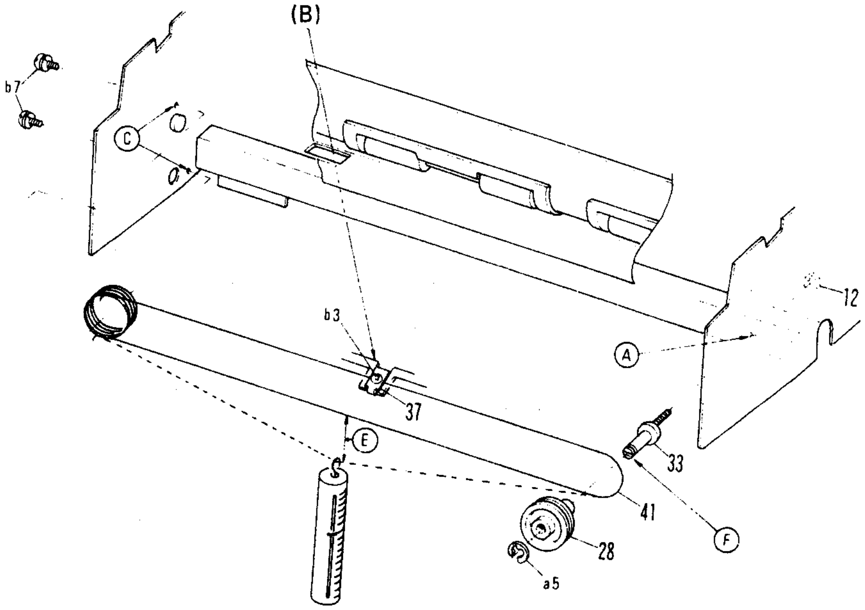

(B)
b7
C
12
A
b3
37
E
33
41
F
28
a5

Fig. A-5

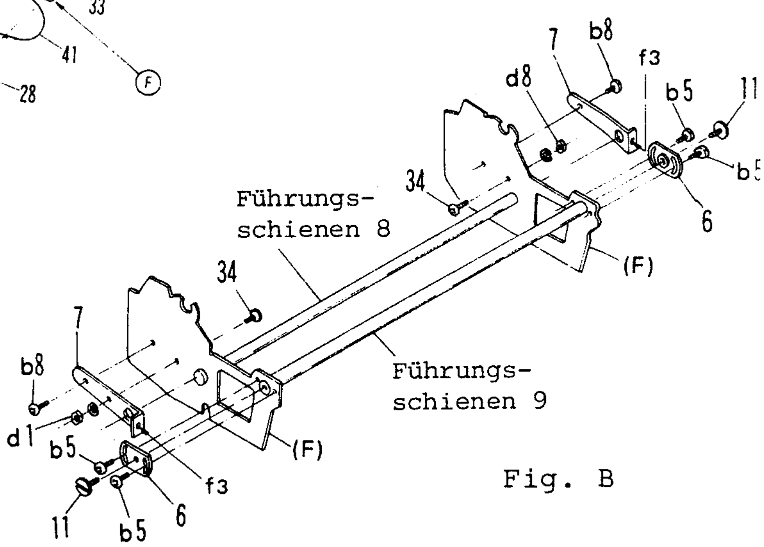

b8
7
f3
d8
b5
11
b5
6
34
Führungs-
schienen 8
(F)
34
Führungs-
schienen 9
7
b8
d1
b5
(F)
f3
11
b5
6

Fig. B

4. SCHREIBWERK

4.1. AUSBAU DES SCHREIBWERKS

a) Siehe Fig A-5. Zunächst die Schraube (b3), mit der das Drahtseil (Zugband) am Schreibwerk befestigt ist, herausdrehen. Dazu das Schreibwerk bis zu einer Position zwischen der ersten und der zweiten Papierführungsrolle (B) schieben und einen Schraubenzieher zwischen diese beiden Rollen einklemmen.

b) Die beiden Halteschrauben (11) für die Führungsschienen (9), wie auf Fig. B gezeigt, entfernen.

c) Die beiden Imbusschrauben (f3), mit denen die Führungsschiene (8) befestigt ist, mit einem 2mm-Imbusschlüssel herausdrehen.

d) Die Führungsschiene (8) seitlich herausziehen.

e) Das Schreibwerk läßt sich an der Führungsschiene (9) herausnehmen, indem man den Rahmen (F) leicht nach außen drückt. Die Führungsschiene (8) wird mit 2 Exzenterscheiben (6) am Rahmen der Maschine justiert. Die Exzenterscheiben lassen sich nachher entfernen. Dabei die Befestigungsschrauben (b5), mit denen sie am Rahmen montiert sind, abnehmen. Die Justierplatten (7) für die Führungsschiene (9) können nach Entfernen der Schrauben (b8) und der Exzenterscheibe (34), die durch die Mutter (d1) gehalten wird, ebenfalls ausgetauscht werden. Die Justierungen der Führungsschienen sind im Abschnitt "Einstellung" genau beschrieben.

4.2. ZERLEGUNG DES SCHREIBWERKS

4.2.1. AUSBAU DES FARBBAND-KASSETTENHALTERS

Der Farbband-Kassettenhalter wird durch 2 Drehzapfen an seiner Rückseite gehalten und ist mit dem Farbbandabheber und dem Farbbandtransport durch eine Nockenrolle verbunden. Wenn sich das Sperrad der Farbbandabhebung und des Farbbandtransports dreht, hebt der Nockenstößel, der in die Zähne des Nockenrades greift, den Farbbandkassettenhalter an. Für das Nockenrad sind 3 Grundstellungen vorgesehen: 0°, 90° und 180°. Wenn der auf der Farbbandanhebung und dem Farbbandtransport angebrachte Motor ein entsprechendes Steuersignal von der Hauptplatine erhält, dreht er das Nockenrad um 90°. Nach erfolgtem Anschlag und Schreiben des Zeichens kehrt das Nockenrad wieder in die 0°-Stellung zurück. Beim Dauerschreiben wechselt die Stellung des Nockenrades, daß durch den Motor angetrieben wird, laufend zwischen 90° und 180°, wodurch sich das Farbband andauernd im angehobenen Zustand befindet. Bei Betätigung der Korrekturtaste wird das Nockenrad durch den Motor in entgegengesetzter Richtung in die 150°-Stellung gebracht. Hierdurch erfolgt eine Anhebung des Korrekturbandes bis zur Höhe des fehlerhaften Zeichens, das nun ausgebessert werden kann.

4.2.2. ZERLEGUNG DES FARBBANDKASSETTENHALTERS

Siehe Fig. C-1

a) Die beiden Schrauben (b9), mit denen die Nockenrolle (49) am Farbband-Kassettenhalter befestigt ist, herausdrehen.

b) Die Befestigungsschraube (b3) der Trägerplatte des Kassettenhalters herausdrehen.

c) Der Kassettenhalter läßt sich nun ausbauen, indem er nach rechts geschoben und der Drehzapfen freigegeben wird.

d) Den Kassettenhalter in Pfeilrichtung A herausheben.

e) Die Klemme E (a2) des Halters abziehen. Der Halter läßt sich dann von der Trägerplatte trennen.

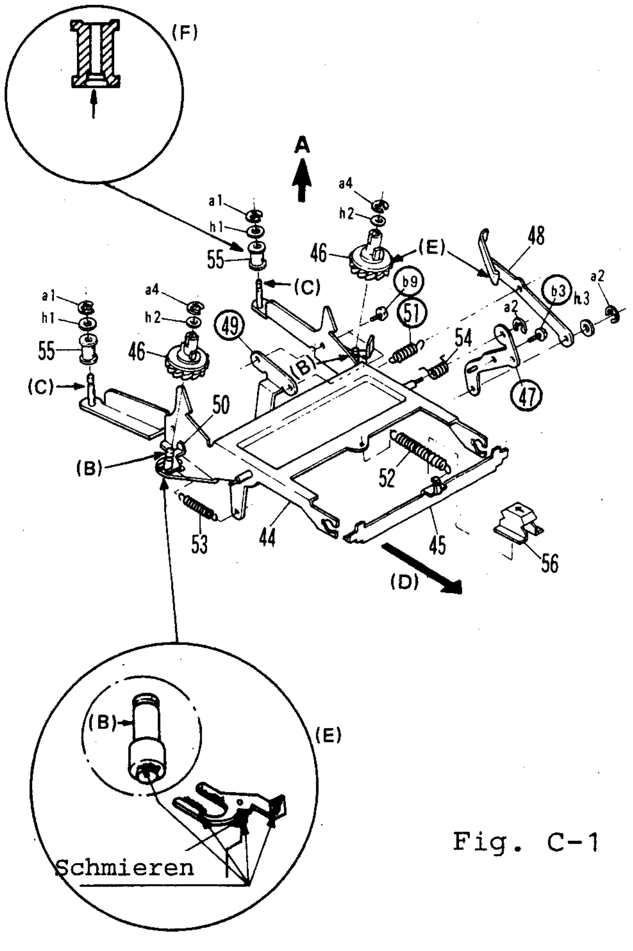

(F)
A
a1
h1
55
a4
h2
46
(E)
48
(C)
b9
51
a2
b3
h3
a2
54
47
49
(B)
a1
h1
55
(C)
a4
h2
46
50
(B)
52
53
44
45
56
(D)
(B)
(E)
Schmieren

Fig. C-1

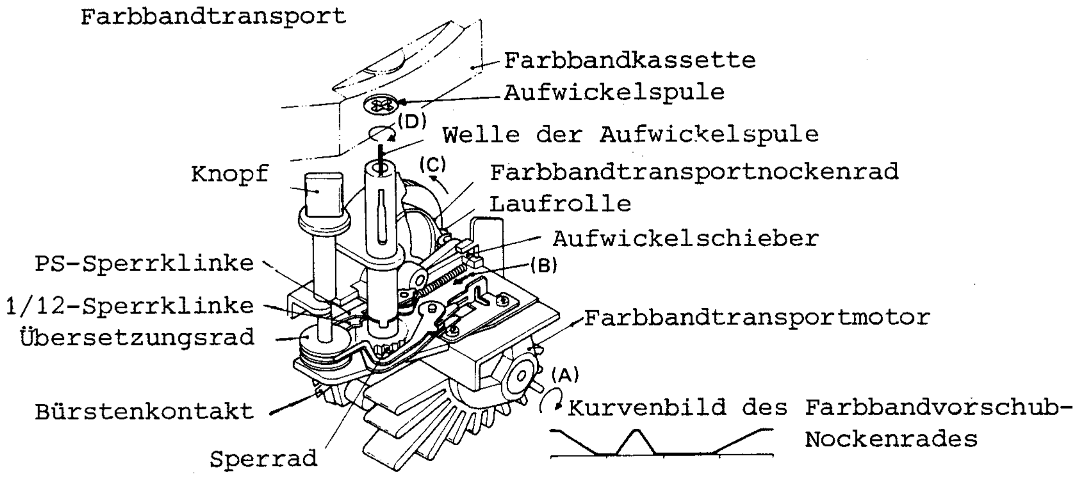

Farbbandtransport
Farbbandkassette
Aufwickelspule
(D)
Welle der Aufwickelspule
Knopf
(C)
Farbbandtransportnockenrad
Laufrolle
Aufwickelschieber
PS-Sperrklinke
(B)
1/12-Sperrklinke
Übersetzungsrad
Farbbandtransportmotor
(A)
Bürstenkontakt
Kurvenbild des Farbbandvorschub-Nockenrades
Sperrad

Fig. D-1

4.3. FARBBANDHUB- UND -TRANSPORTMECHANIK

Der Transport und das Aufspulen des Farbbandes erfolgen wie nachstehend beschrieben:

a) Bei Einzelanschlag (Schreiben eines Zeichens)
(Siehe Fig. D-1 und D-1A)
Mit dem Farbbandhubsignal dreht sich der Farbbandmotor durch Bürstenkontakt (Fig. D-1A) aus in Pfeilrichtung (A), bis das 90°-Signal eingeschaltet wird (ON). Infolge dieser Drehung bewegt sich auch das Farbband-Vorschubnockenrad um 90° in Pfeilrichtung (C). Die am Farbband-Aufwickelschieber befestigte Laufrolle gleitet in Pfeilrichtung (B) über die Nocken. Die ebenfalls am Aufwickelschieber befestigte 1/12-Sperrklinke greift im Sperrad ein und verbleibt in dieser Ausgangsstellung. Erreicht das Signal zur Farbbandabsenkung den Motor, dreht sich dieser durch Bürstenkontakt in Pfeilrichtung (A), bis das 0°-Signal einschaltet.

Das Nockenrad dreht sich dabei in entgegensetzter Pfeilrichtung, wobei der Aufwickelschieber in seine Ausgangsposition zurückkehrt. Das durch die Sperrklinke angetriebene Sperrad dreht sich in Pfeilrichtung (D), und das Farbband wird vorgeschoben.

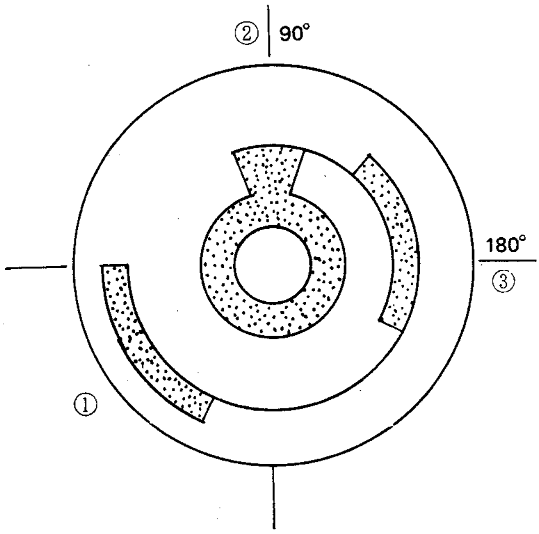


Fig. D-1A

Kontakt bei:

1+ MITTE = NOCKENRAD-AUSGANGSSTELLUNG

2+ MITTE = 90° (Position A)

3+ MITTE = 180° (Position B)

b) Bei Dauerschreiben
(Siehe Fig. D-1)
Bei Erreichen des Farbbandhubsignals dreht sich der Farbband-Transportmotor durch Bürstenkontakt in Pfeilrichtung (A), bis das 0°-Signal eingeschaltet wird. Dabei stehen die PS- oder die 1/12-Sperrklinke wie oben beschrieben mit dem Sperrad in Eingriff. Dann dreht sich der Motor durch Bürstenkontakt so lange in Pfeilrichtung (A), bis das 180°-Signal einschaltet. Dabei läuft die Rolle über die Spitze des Vorschubnockens, wodurch sich der Aufwickelschieber vorund zurück bewegt und das Sperrad dreht. Hierdurch wird das Farbband vorgeschoben. Anschließend dreht sich der Farbbandmotor durch Bürstenkontakt in Pfeilrichtung (A), bis das 90°-Signal eingeschaltet wird, was den Bandtransport bewirkt.

c) Vorschub des Korrekturbandes:

Die Hubmechanik des Korrekturbands schaltet den Kassettenhalter von deren Ausgangsstellung (Fig. D-2) in die Betriebsstellung (Fig. D-3). Dadurch ändert sich die relative Lage zwischen der Spitze des Korrekturband-Vorschubhebels, dessen Drehpunkt sich auf dem Schlittensockel befindet und der Korrekturbandspule, wie Fig. D-2 und D-4 zeigen.

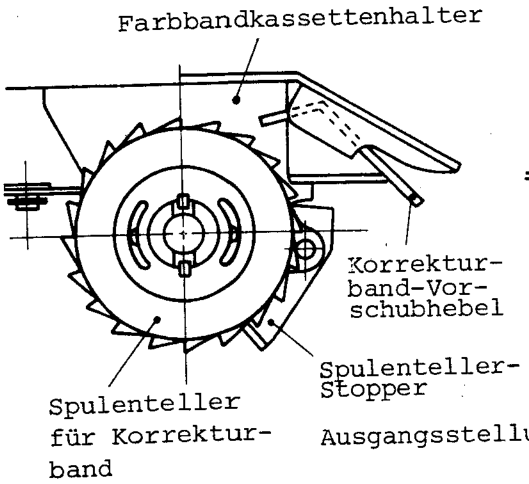

Farbbandkassettenhalter
Korrekturband-Vorschubhebel
Spulenteller-Stopper
Spulenteller für Korrekturband
Ausgangsstellung

Fig. D-2

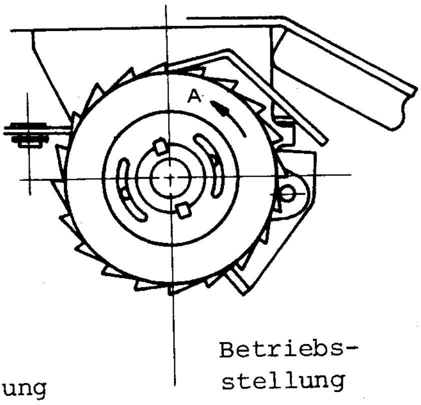

A
Betriebsstellung

Fig. D-3

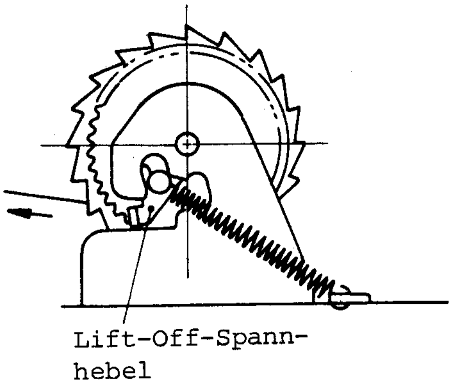

Lift-Off-Spannhebel

Fig. D-4

Dann bewegt sich die Korrekturbandspule um einen Zahn weiter in Pfeilrichtung (A) und transportiert dabei das Korrekturband. Um ein Durchhängen des Korrekturbandes während der Korrektur zu verhindern, sorgt ein Spannhebel mit Zugfeder für den erforderlichen Bandzug.

4.3.1. ZERLEGUNG

Siehe Fig. D-5

a) Die beiden Schrauben (D) und (E) entfernen, mit denen der Nockenstößel am Kassettenhalter befestigt ist. Dann Nockenstößel herausziehen.

b) Den Schlitten von Hand soweit bewegen, bis sich das Wäremableitungsteil des Motors über der quadratischen Bohrung im Boden des Hauptrahmens befindet.

c) Schrauben (B) und C) herausdrehen.

d) Farbbandtransport in Pfeilrichtung (F) schieben.

e) Die gesamte Baugruppe herausheben und die Steckverbinder (C19) und (C22) an der Bodenplatte des Schlitten lösen.

f) Farbbandtransportmechanik vom Schlitten ziehen.

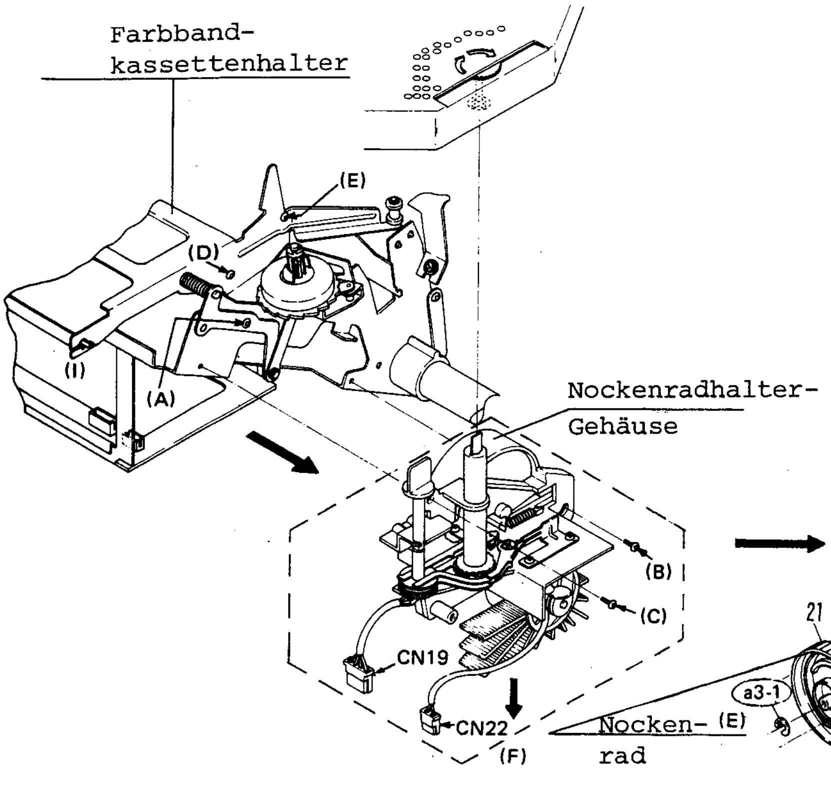

Farbband-kassettenhalter
(E)
(D)
(I)
(A)
Nockenradhalter-Gehäuse
(B)
(C)
CN19
CN22
(F)

Fig. D-5

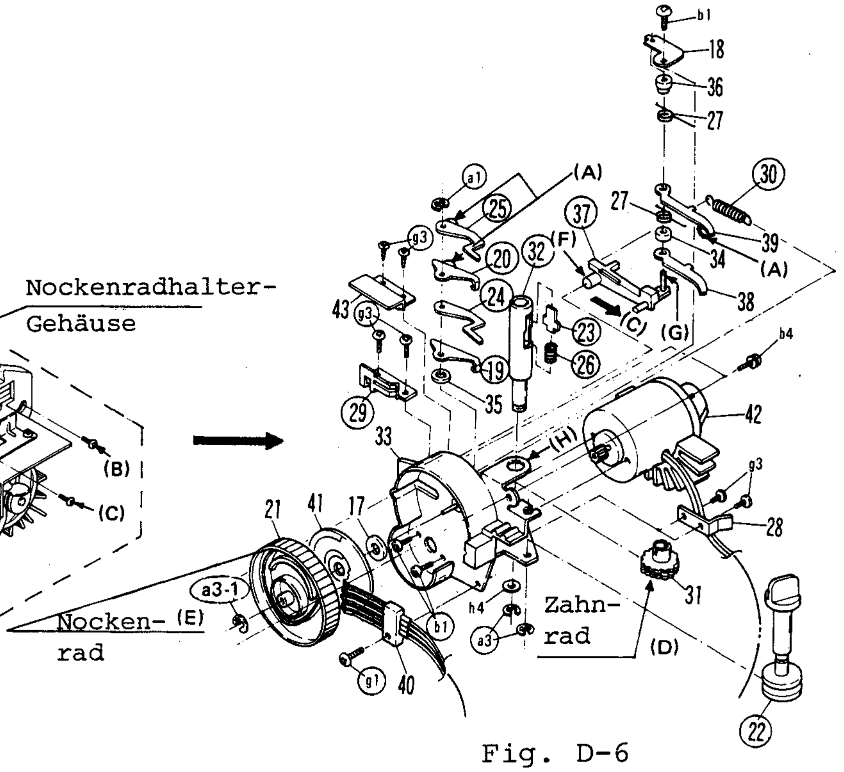

b1
18
36
27
30
(A)
a1
25
37
32
(F)
27
39
(A)
g3
20
34
38
43
g3
24
23
(C)
(G)
b4
26
19
35
29
33
(H)
42
21
41
17
g3
28
a3-1
(E)
Nocken-rad
b1
h4
a3
Zahn-rad
31
(D)
g1
40
22

Fig. D-6

4.4. ZERLEGEN VON FARBBANDHUB-UND -TRANSPORTMECHANIK

Nachdem Farbbandhub und -Transportmechanikteile entfernt wurden, erfolgt die Zerlegung gemäß Fig. D-6.

a) Klemme E (a3-1) entfernen und das Nockenrad von der Welle ziehen.

b) Schraube (g1) herausdrehen. Die Bürsteneinheit ist jetzt zugänglich.

c) Die beiden Schrauben (b1) herausdrehen und den Farbband-Transportmotor abnehmen.

d) Die beiden Schrauben (g3) und die Abdeckung der Sperrklinkenfeder entfernen.

e) Zwei weitere Schrauben (g3) und die Sperrklinkenfeder (29) entfernen.

f) Klemme E (a3) entfernen und die Sperrklinkenhebel (19,20,24,25) abziehen.

g) Den Farbband-Vorschubhebel (22) nach Abziehen der Klemmen (a3) ausbauen.

h) Klemme (a3) und die Plastikscheibe entfernen, Welle (32) nach oben ziehen und das Farbband-Wickelrad abnehmen. Druckfeder (26) und Aufwickelspulenteller (23) können mit einer kleinen Kneifzange durch die Öffnung (B) entfernt werden.

i) Jetzt die Feder (30) abnehmen, den Aufwickelschieber (37) ganz in Pfeilrichtung (C) schieben und herausziehen.

Der Zusammenbau der Fabbandhub- und -transportmechanik geschieht in umgekehrter Reihenfolge. Dabei jedoch Fig. D-6 beachten und folgende Teile mit Schmierfett (Molikot X5-6020) bestreichen: (D), (E), (F), (G) und (H). Bürstenkontakte (40) und Schleifring (41) leicht mit Öl (Flody 923) bestreichen.

4.5. AUSBAU DES ANSCHLAGHAMMERS UND DES TYPENRAD-MOTORS

Siehe Fig. E-1, E-2 und E-3.
Die Baugruppe von Hammer und den Typenrad-Motor entsprechend Fig. E-1 ausbauen und dann mit der Zerlegung beginnen.

Es wird dabei vorausgesetzt, daß der Farbband-Kassettenhalter und die Transportmechanik bereits entfernt wurden. Der Ausbau des Farbband-Kassettenhalters ist in Abschnitt 4.2.2. beschrieben.

a) Schrauben (15), mit denen die Montageplatte für den Kartenhalter am Schlitten befestigt ist, entsprechend Fig. E-2 herausdrehen.

b) Die beiden Gelenke und Drehzapfen (4) ausbauen. Siehe Fig. E-2.

c) Die Führungen des Typenrad-Gehäuses aus dem Schlittengestell ausbauen. Dazu in Pfeilrichtung (A), wie auf Fig. E-2 gezeigt, auf die beiden an den Führungen angebrachten Kunststoffklammern (13) und (14) drücken.

d) Die Rückstellfeder (10) der Halterung für den Typenradmotor von den Gelenken und Drehzapfen (4) und dem Schlittengestell abziehen, wie auf Fig. E-2 gezeigt.

e) Die Steckverbinder für den Typenradmotor und den Anschlaghammer am Boden des Schlittens abklemmen. Fig. E-2.

f) Den Typenradmotor-Codierstecker von der Codier-Leiterplatte abklemmen.

g) Das Anschlaghammer-Gehäuse (B) an beiden Enden fassen und den Anschlaghammer-Motor aus dem Schlitten ausbauen. Fig. E-1.

h) Die Masse-Steckverbindung lösen.

i) Die Anschlußleiste am Boden des Schlittens ausbauen.

j) Die beiden Schrauben (b4), mit den das Anschlaghammer-Gehäuse befestigt ist, herausdrehen. Das Gehäuse (61) dann nach oben abziehen. Fig. E-3

k) Die beiden Schrauben (b2) herausdrehen und den Elektromagneten des Anschlaghammers in Pfeilrichtung (C) herausziehen.

l) Die drei Schrauben (b2), mit denen der Typenradmotor am Anschlaghammer-Rahmen befestigt ist, herausdrehen. Den Motor in Pfeilrichtung (D) drücken und herausnehmen.

VORSICHT: Den Mitnehmer (E) des Typenradmotors (auf Fig. E-1) nicht verkratzen.

m) Feder (9) und den Segerring (a3) abziehen. Der Verriegelungshebel (7) und der zugehörige Knopf (59) können jetzt entfernt werden.

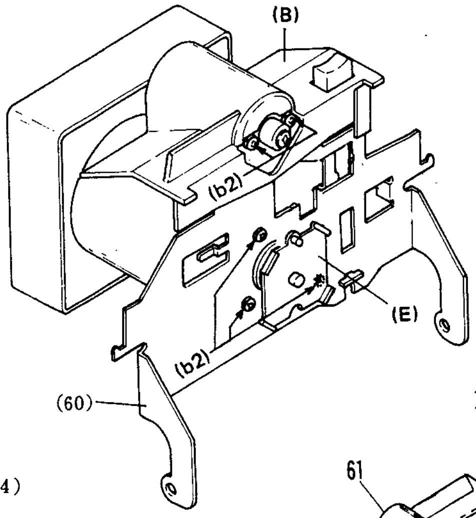


Fig. E-1

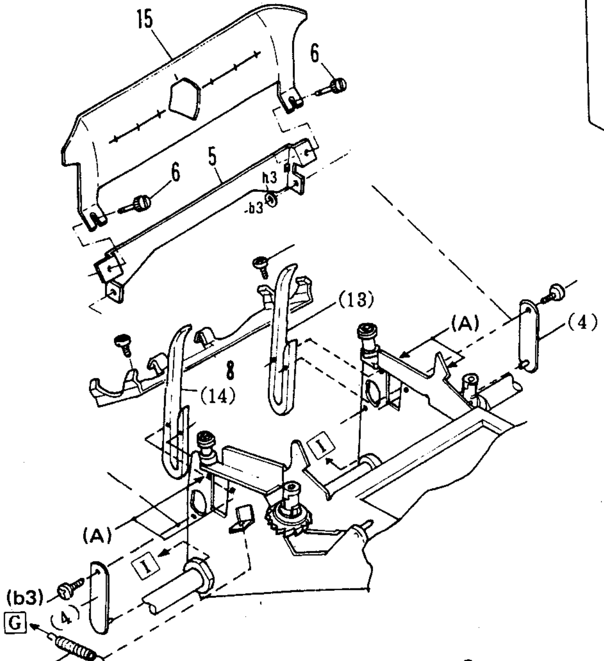

15
6
6
5
b3
b3
(13)
(A)
(4)
(14)
(A)
I
I
(b3)
G
(4)
(10)

Fig. E-2

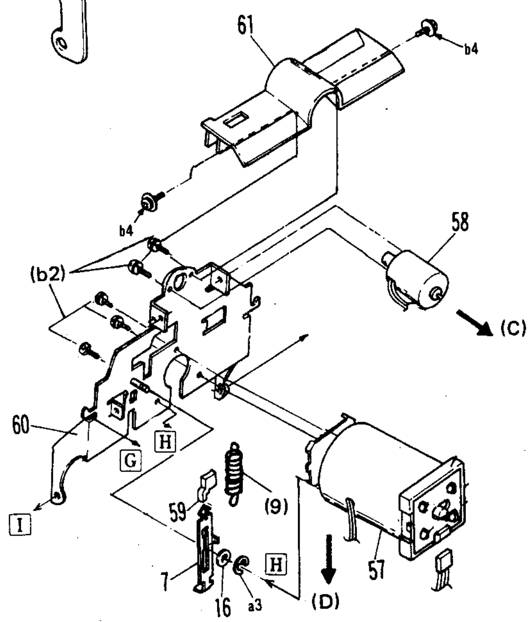

61
b4
b4
(b2)
58
(C)
60
G
H
I
59
(9)
7
16
a3
H
(D)
57

Fig. E-3

Der Zusammenbau geschieht in umgekehrter Reihenfolge. Beim Austausch des Elektromagneten für den Anschlaghammer ist jedoch darauf zu achten, daß der Hammer in Pfeilrichtung (A) auf Fig. E-4 herausgedrückt wird und sich frei bewegt. Dann erst mit dem Einbau des Anschlaghammers beginnen.

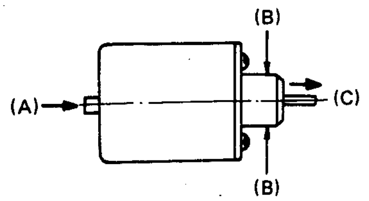


Fig. E-4

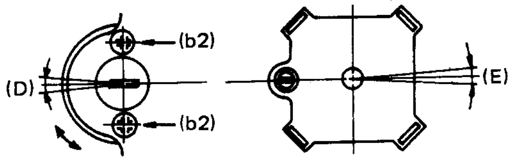


Fig. E-5

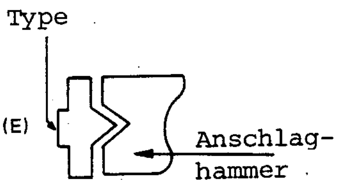

Type
Anschlag-
hammer

Fig. E-6

5. SCHREIBWERKMOTOR

Siehe Fig. F-1
Der Schreibwerkmotor dreht sicht, wenn die Hauptlogikplatine die erforderliche Betriebsspannung zuführt. Die jeweilige Position des Schreibwerkmotors wird der Logikschaltung über ein am rückwärtigen Ende der Motorwelle angebrachtes Codierrad gemeldet. Wenn sich der Motor dreht, treibt er die Drahtseiltrommel (61) an. Das um die Trommel gewickelte Drahtseil verläuft zunächst zur linken Seite des Schreibwerkrahmens und über die Umlenkrolle (28) wieder zur Trommel zurück. Das Schreibwerk ist an einer bestimmten Stelle mit dem Drahtseil verbunden. Sobald dem Schreibwerkmotor die Betriebsspannung zugeführt wird, dreht dieser die Seiltrommel, die das Drahtseil über die Umlenkrolle zieht. Dadurch bewegt sich auch das am Drahtseil befestigte Schreibwerk in beiden Richtungen über die Schreibfläche.

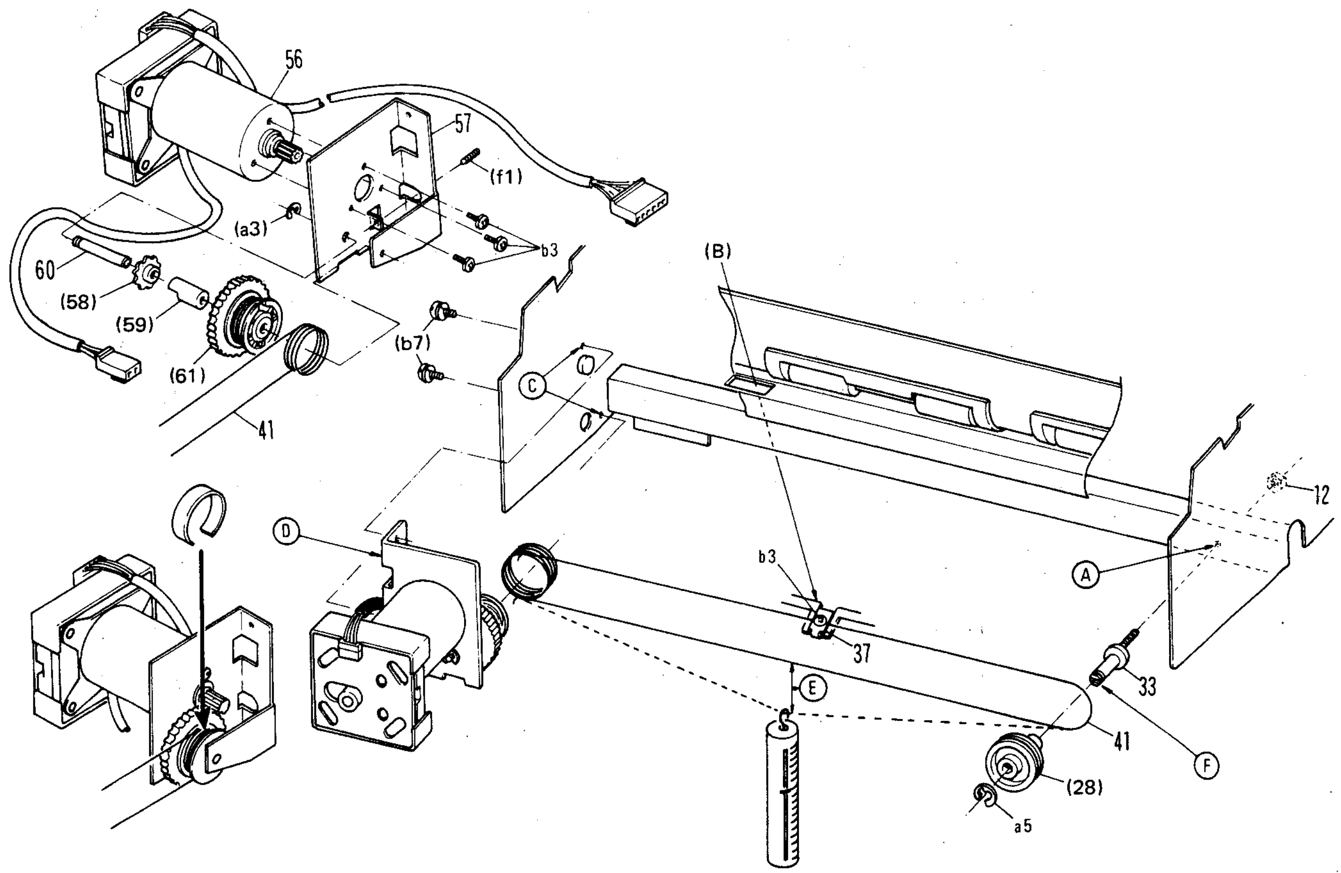


Fig. F-1

5.1. ZERLEGUNG

Siehe Fig. F-1.
Es wird vorausgesetzt, daß der Schreibwerkrahmen bereits aus dem Gehäuse-Unterteil ausgebaut wurde. Die Reihenfolge des Ausbaus ist auf Seite 1-5 beschrieben.

a) Die Befestigungsklammer (37), mit der das Drahtseil am Schreibwerk verbunden ist, entfernen. Dies geschieht mit Hilfe eines Schraubenziehers, der zwischen den Papierführungsrollen eingesetzt wird, und zwar an den mit (B) bezeichneten Punkten in Fig. F-1.

b) Die beiden Schrauben (b7), mit denen der Motor am Schreibwerkrahmen befestigt ist, herausdrehen.

c) Das Drahtseil von der Trommel abwickeln.

Die folgenden Arbeiten werden im linken oberen Teil der Fig. F-1 dargestellt.

a) Klemme (a3) abziehen und Trommelwelle herausdrücken.

b) Durch Ziehen in Pfeilrichtung (G) werden Trommel (61), Trommel-Exzenter (59), Exzenter-Einstellknopf (58) und der Ring des Einstellknopfes (10) freigegeben und können als Einheit aus dem Rahmen ausgebaut werden.

c) Zum Abnehmen des Einstellknopfes die Madenschrauben (f1) lösen.

Der Zusammenbau geschieht bis auf das Drahtseil in umgekehrter Reihenfolge. Das Aufziehen des Drahtseils wird nachfolgend beschrieben.

5.2. AUFZIEHEN DES DRAHTSEILS

a) Das Metallstück am Drahtseil, das am weitesten von der Markierungsstelle entfernt ist, an der das Seil am Schlitten befestigt wird, wie auf Fig. F-2 gezeigt, in die Aussparung der Seiltrommel einführen.

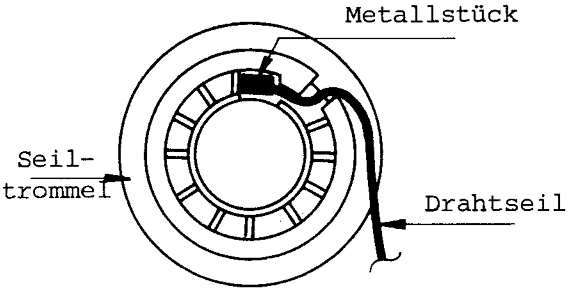

Metallstück
Seil-
trommel
Drahtseil

Fig. F-2

b) Das Drahtseil von der linken Seite aus gesehen 6 1/2 mal im Uhrzeigersinn, wie auf Fig. F-3 gezeigt, um die Trommel wickeln.

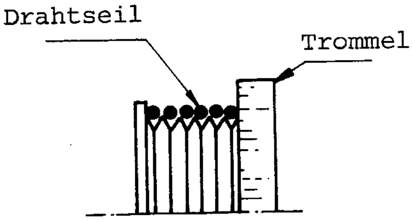

Drahtseil
Trommel

Fig. F-3

c) Das hufeisenförmige Hilfswerkzeug (Seilhalter) wie auf Fig. F-1 (links unten) und F-4 gezeigt auf die vollständig bewickelte Seiltrommel stecken, damit sich das Drahtseil nicht wieder abwickeln kann.

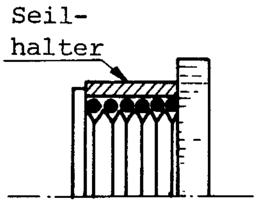

Seil-
halter

Fig. F-4

d) Das Metallstück am anderen Ende des Drahtseils in den Ausschnitt A einführen, dann wie gezeigt in die Raststellung D schieben.

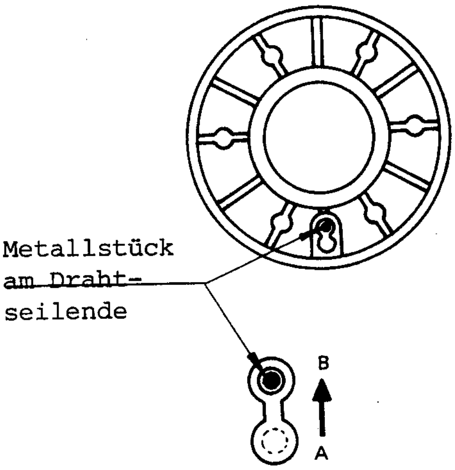

Metallstück am Drahtseilende
B
A

Fig. F-5

6. PAPIERVORSCHUBMECHANISMUS

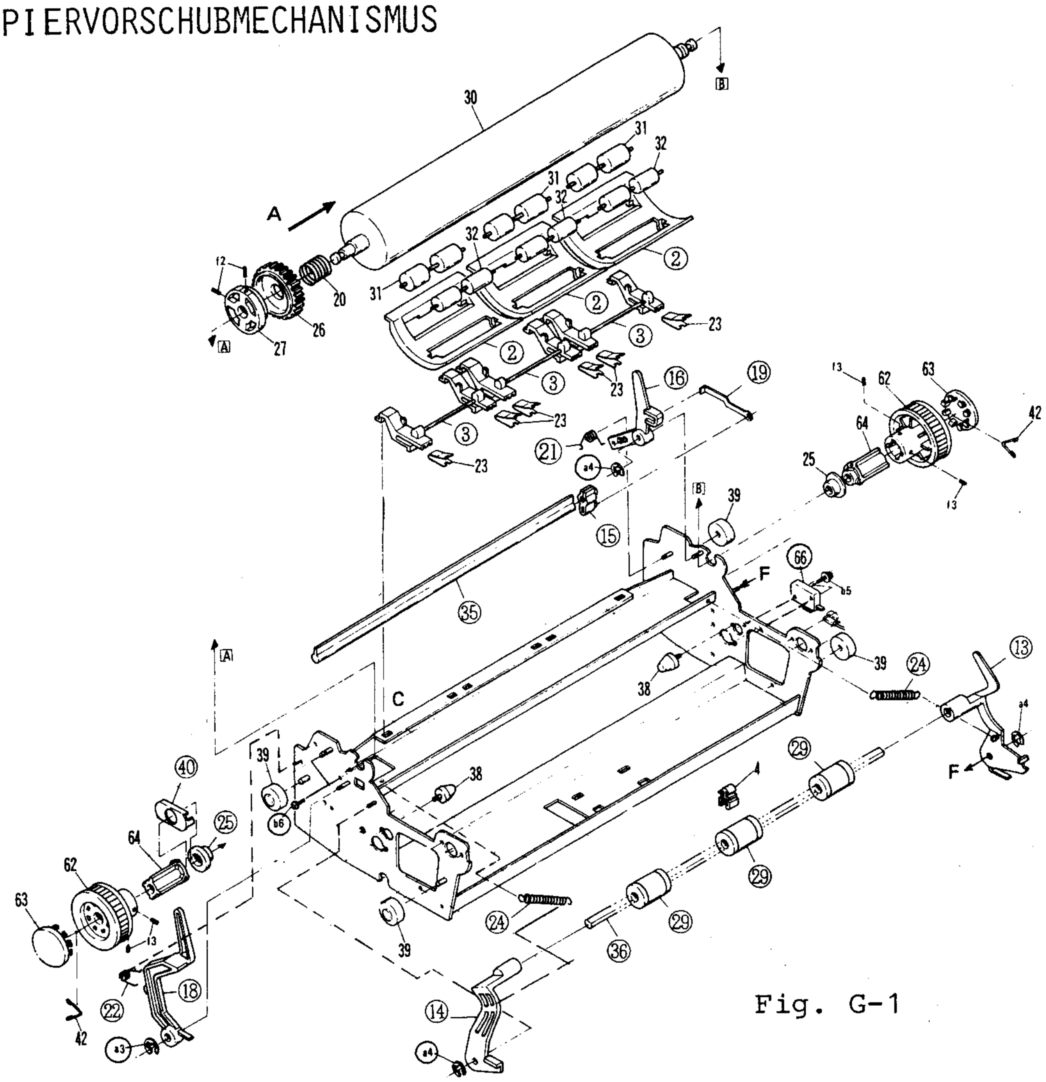

30
B
31
32
A
12
20
26
27
A
②
③
23
⑯
⑲
㉑
a4
13
62
63
42
64
25
B
39
⑮
(66)
b5
F
㉟
A
C
38
39
㉔
⑬
a4
F
㉙
4
㊵
39
b6
㉕
64
62
63
38
㉔
㉙
36
39
⑱
㉒
42
a3
⑭
a4

Fig. G-1

Wenn der Papiervorschubmotor ein Steuersignal von der Hauptlogikplatine erhält, dreht er sich so lange, wie die Betriebsspannung anliegt. Durch seine Drehung treibt der Motor das Getriebe des Papiervorschubs an. Die Exzenterwelle des Papiervorschubgetriebes bewegt die Sperrklinke B vor und zurück und dreht über das Sperrad die Walze. Bei jeder Drehung wird die Walze um 1/12 Zoll (ca. 2,1 mm) gedreht. An der Sperrklinke A liegt stets eine Anschlagsrolle an, die jeweilige Position der Walze bestimmt und verhindert, daß sich diese verschiebt.

6.1. ZERLEGUNG

Es wird vorausgesetzt, daß der Schreibwerkrahmen bereits aus dem Gehäuse-Unterteil ausgebaut ist. Näheres darüber auf Seite 1-7.

Siehe Fig. G-1

a) Segerring (a3) abziehen.

b) Spreizfeder (22) entfernen.

c) Papier-Vorschubhebel (18) ausbauen.

d) Die Anschlußkabel des Vorschubmotors und des Reed-Relais am Boden des Schreibwerkrahmens lösen.

e) Die beiden Schrauben (b6) herausdrehen. Der Papiervorschubmechanismus kann jetzt aus dem Schreibwerkrahmen ausgebaut werden. Siehe Fig. G-3.

f) Die Montageplatte des Papiervorschubmechanismus (44) kann nach Herausdrehen der drei Schrauben (g2) ebenfalls abgenommen werden.

g) Die Sperrklinkenfeder (48) und die Anschlagrollenfeder (47) ausbauen.

h) Zunächst die Anschlagrolle (50), dann die Sperrklinken (46) und (47) entfernen.

i) Das Papiervorschubzahnrad (49) herausziehen. Danach kann auch der auf der Rückseite des Zahnrades angebrachte Magnet (51) abgenommen werden.

j) Zum Ausbau des Motors (55) die beiden Schrauben (b1) herausdrehen.

k) Nach Herausdrehen der Schraube (b4) den Mikroschalter (52, 53 und 54) ausbauen.

Der Zusammenbau erfolgt in umgekehrter Reihenfolge.

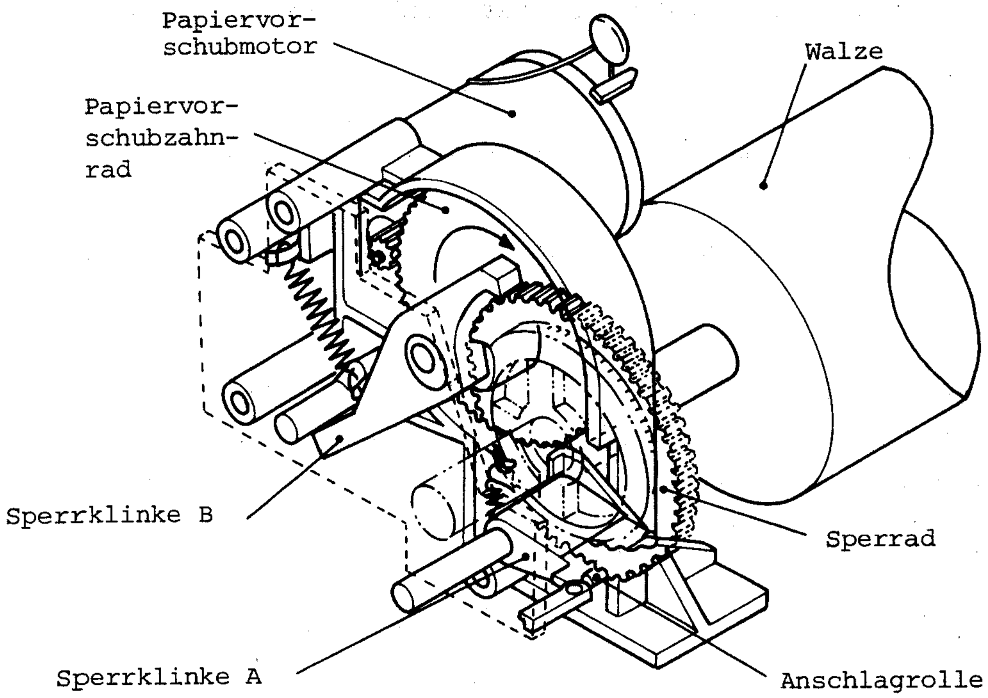

Papiervorschubmotor
Papiervorschubzahnrad
Walze
Sperrklinke B
Sperrad
Sperrklinke A
Anschlagrolle

Fig. G-2

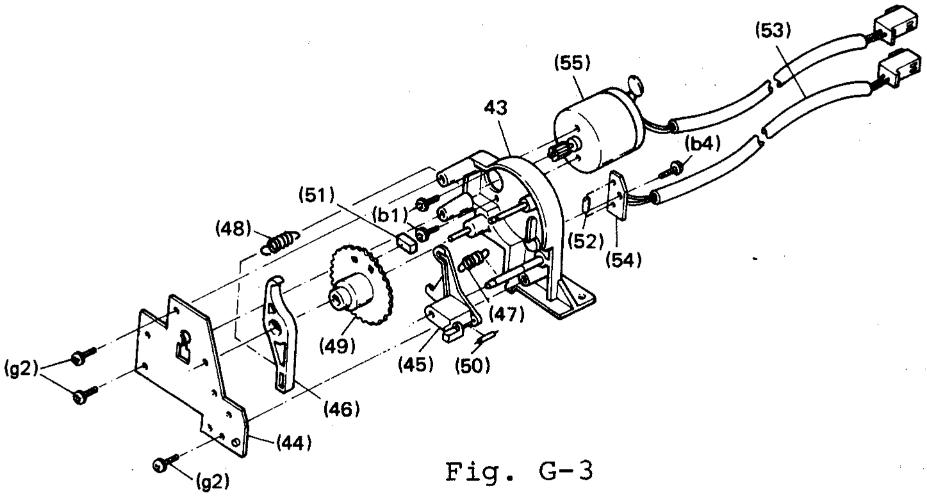

(53)
(55)
43
(b4)
(51)
(b1)
(48)
(52)
(54)
(47)
(49)
(45)
(50)
(g2)
(46)
(44)
(g2)

Fig. G-3

7. WALZE

7.1. AUSBAU

Siehe Fig. G-1.

a) Die Drehknöpfe auf beiden Seiten der Walze mit Hilfe eines 2mm-Imbusschlüssels entfernen.

b) Den Kupplungsring (40) auf der linken Seite der Walze abziehen.

c) Lager (25) auf beiden Seiten der Walze abziehen.

d) Die Walze nach oben aus dem Schreibwerkrahmen herausheben.

Der Zusammenbau geschieht in umgekehrter Reihenfolge. Bei der Montage der Walzenknöpfe darauf achten, daß der Knopf mit dem Mitnehmer für den Kupplungsring auf der linken Seite der Walze anzubringen ist.

8. AUSRICHTLEISTE

Siehe Fig. G-1, Teil-Nr. #13, 14, 24, 29 und 36.
Aufgabe der Ausrichtleiste ist es, das Papier lotrecht zur Walze zu transportieren und es so gegen die Walze zu drücken, daß es sich nicht verschieben kann. Außerdem sorgt die Ausrichtleitse für den gleichmäßigen Abstand zwischen den einzelnen Zeichen und Zeilen.

8.1. ZERLEGUNG

a) Klemmringe (a4) abziehen, mit denen die Lösehebel (13) und (14) befestigt sind.

b) Die Federn (24) an beiden Seiten der Ausrichtleiste abnehmen.

c) Den Hebel (14) von der Achse des Schreibwerkrahmens abziehen und die Ausrichtleiste als Einheit ausbauen.

Der Zusammenbau geschieht in umgekehrter Reihenfolge.

9. PAPIER-EINZUGSCHALTER

Siehe Fig. G-1.
Der Papier-Einzugschalter (66), der auf der rechten Seite des Schreibwerkrahmens angebracht ist, wird aktiviert, wenn man den Lösehebel bis zum Anschlag nach vorn zieht. Der Schalter ist mit zwei Schrauben befestigt und erfordert keinerlei Eistellungen.

10. PAPIERLÖSEMECHANIK

Papierlösemechanik

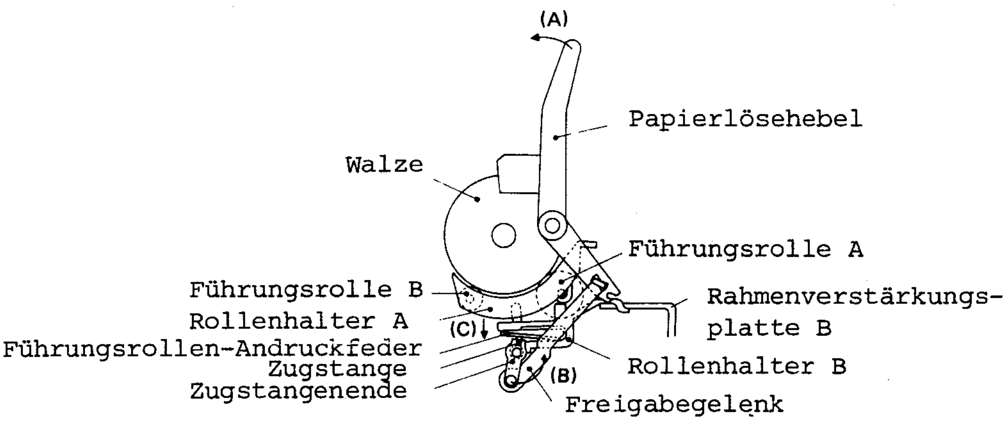

(A)
Papierlösehebel
Walze
Führungsrolle A
Führungsrolle B
Rahmenverstärkungs-platte B
Rollenhalter A
(C)
Führungsrollen-Andruckfeder
Zugstange
Rollenhalter B
(B)
Zugstangenende
Freigabegelenk

Fig. G-4

Siehe Fig. G-4.
Durch Ziehen des Papierlösehebels in Pfeilrichtung (A) bewegt sich die Zugstange in Pfeilrichtung (B), da das Freigabegelenk mit dem Papierlösehebel fest verbunden ist. Durch Umlegen und Absenken dieses Hebels werden die Andruckfedern der Führungsrollen entspannt. Die Rollen liegen nun nicht mehr fest auf der Walze an, und es entsteht ein Zwischenraum.

Das eingespannte Papier läßt sich nun frei nach allen Seiten bewegen und in die gewünschte Lage bringen.

10.1. ZERLEGUNG

Es wird vorausgesetzt, daß der Schreibwerkrahmen aus dem Gehäuse-Unterteil ausgebaut wurde. Der Ausbau des Schreibwerkrahmens wird auf Seite 1-5, der Ausbau der Walze auf Seite 1-15 beschrieben. Fig. G-1

a) Den Rollenhalter (2) nach oben stellen und herausnehmen.

b) Das Mittelstück des Rollenhalters (3) ebenfalls anheben und aus den Montagebohrungen ziehen.

c) Die Spreizfeder (21) und den Segerring (a4) vom Papierlösehebel (16) abziehen.

d) Das Freigabegelenk (19) vom Papierlösehebel (16) und vom Ende der Zugstange (15) abnehmen.

e) Zugstange (35) ausbauen.

Der Zusammenbau geschieht in umgekehrter Reihenfolge.

II. BESCHREIBUNG DER PLATINEN, DEREN AUSBAU UND AUSTAUSCH

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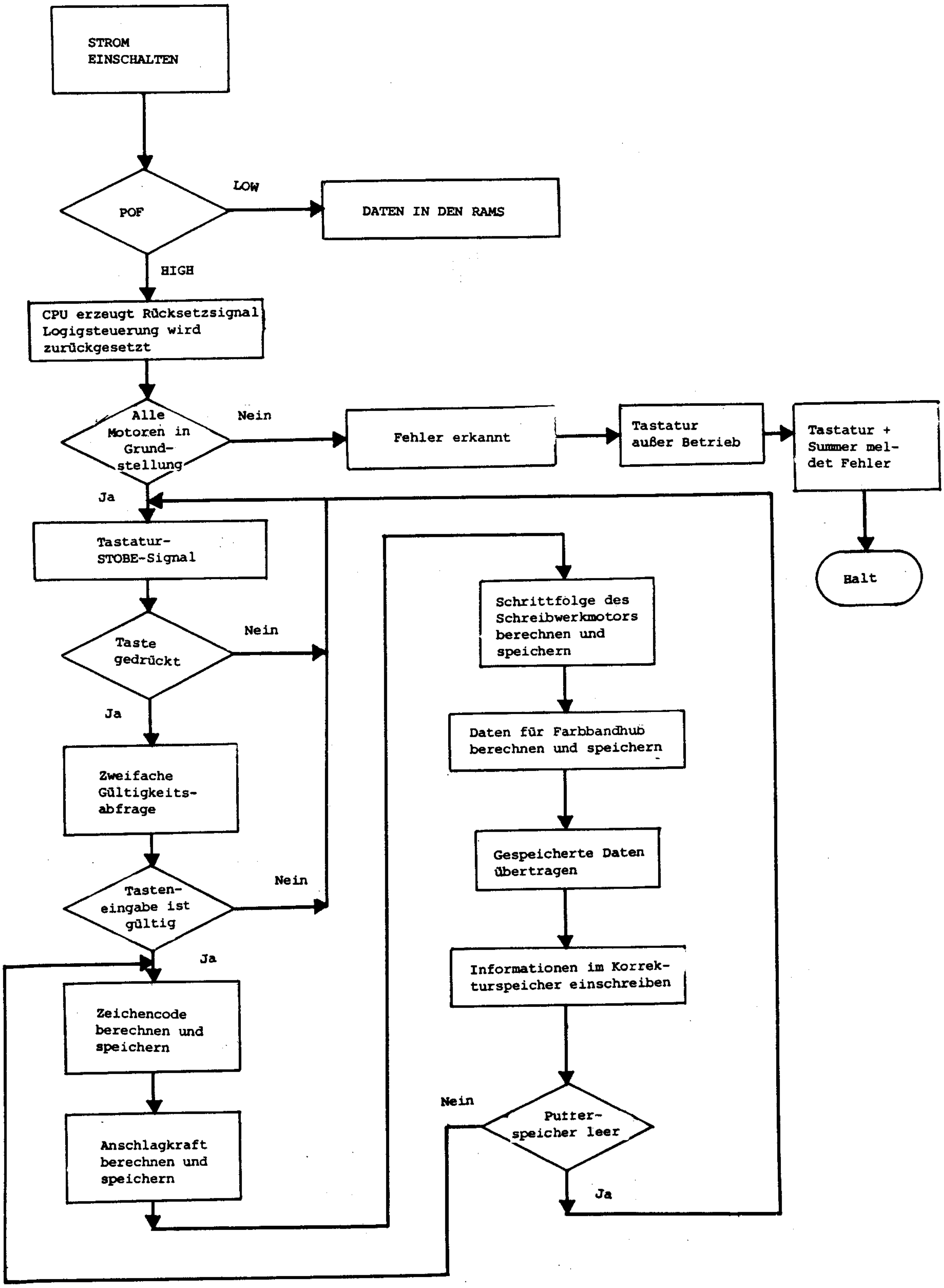
1. ABLAUFDIAGRAMM


STROM EINSCHALTEN
POF
LOW
DATEN IN DEN RAMS
HIGH
CPU erzeugt Rücksetzsignal Logigsteuerung wird zurückgesetzt
Alle Motoren in Grundstellung
Nein
Fehler erkannt
Tastatur außer Betrieb
Tastatur + Summer meldet Fehler
Halt
Ja
Tastatur-STOBE-Signal
Taste gedrückt
Nein
Ja
Zweifache Gültigkeitsabfrage
Tasteneingabe ist gültig
Nein
Ja
Zeichencode berechnen und speichern
Anschlagkraft berechnen und speichern
Schrittfolge des Schreibwerkmotors berechnen und speichern
Daten für Farbbandhub berechnen und speichern
Gespeicherte Daten übertragen
Informationen im Korrekturspeicher einschreiben
Nein
Putterspeicher leer
Ja

2. HAUPTLOGIKPLATINE

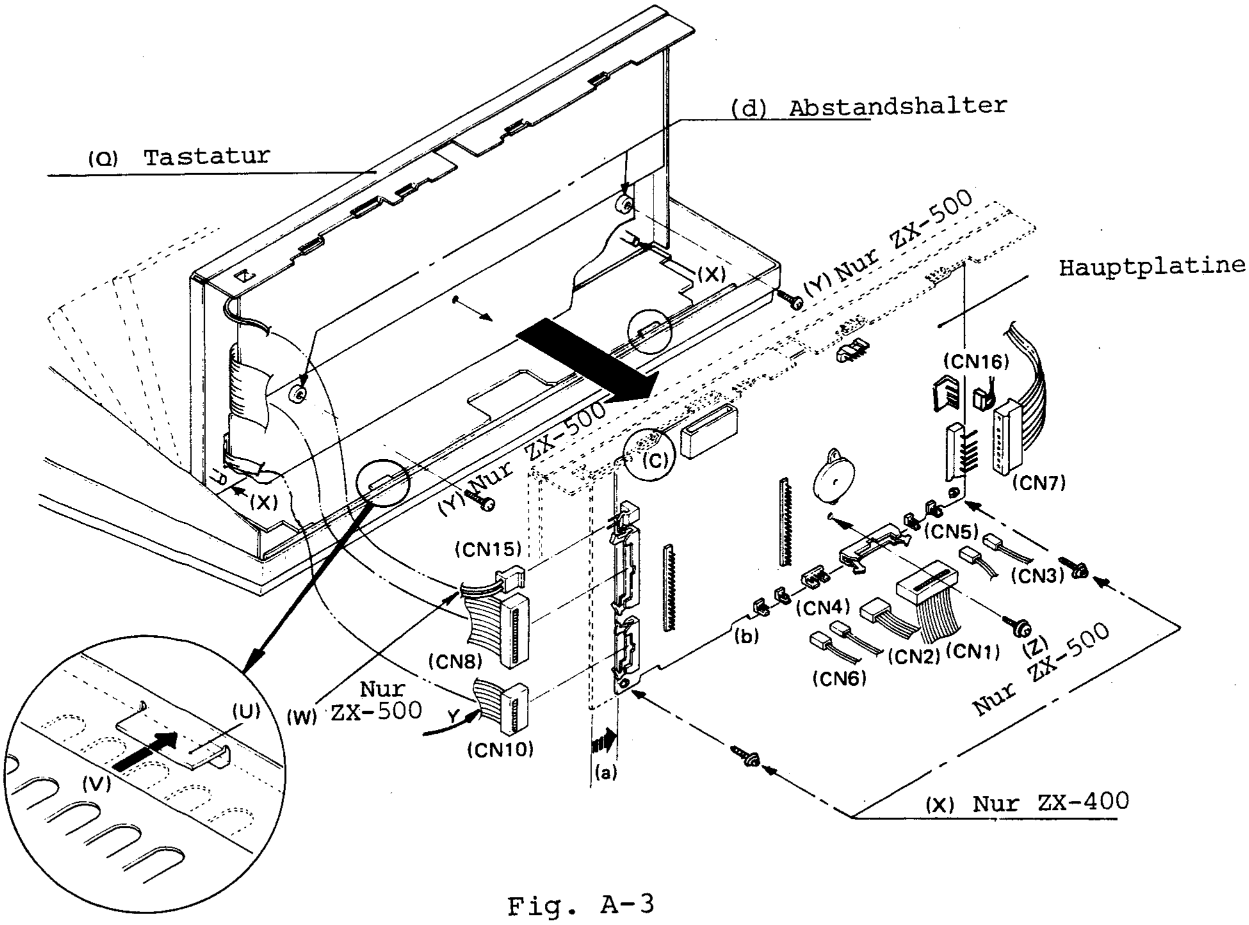

(d) Abstandshalter
(Q) Tastatur
(X)
(Y) Nur ZX-500
Hauptplatine
(CN16)
(CN7)
Nur ZX-500
(C)
(Y)
(X)
(CN5)
(CN3)
(CN15)
(CN4)
(b)
(CN8)
(CN2)
(CN1)
(Z)
Nur ZX-500
(CN6)
(U)
(W) Nur ZX-500
Y
(CN10)
(V)
(a)
(X) Nur ZX-400

Fig. A-3

Die Hauptlogikplatine, hiernach als PWB bezeichnet, befindet sich unter der Tastatur. Die PWB ist das "Herz" der elektronischen Schreibmaschine und steuert alle Motoren, Elektromagnete und die einzelnen Betriebsabläufe.

2.1. AUSBAU

Siehe Verdrahtungspläne auf den Seiten 2-3 und 2-4

a) Folgende Steckverbindungen lösen:

CN1	Flachbandkabel zum Schreibwerk
CN2	Fotocodierer am Schreibwerk
CN3	Schreibwerkmotor
CN4	Reed-Relais des Papiervorschubotors

CN5	Papiervorschubmotor
CN6	Automatischer Papiereinzug
CN7	Netzteil
CN8	Tastatur
CN10	Tastatur (nur ZX-500)
CN13	Display-Platine (nur ZX-500)
CN16	Deckelschalter

Die Schritte (b) und (c) werden in Fig. A-3 erläutert.

Entfernen der Hauptplatine von Modell ZX-400:

b) Die beiden Schrauben auf der Unterseite der Platine herausdrehen.

c) Platine von den beiden Messing-Haltebolzen abheben. Bei der Lagerung vor elektrostatischer Aufladung schützen.

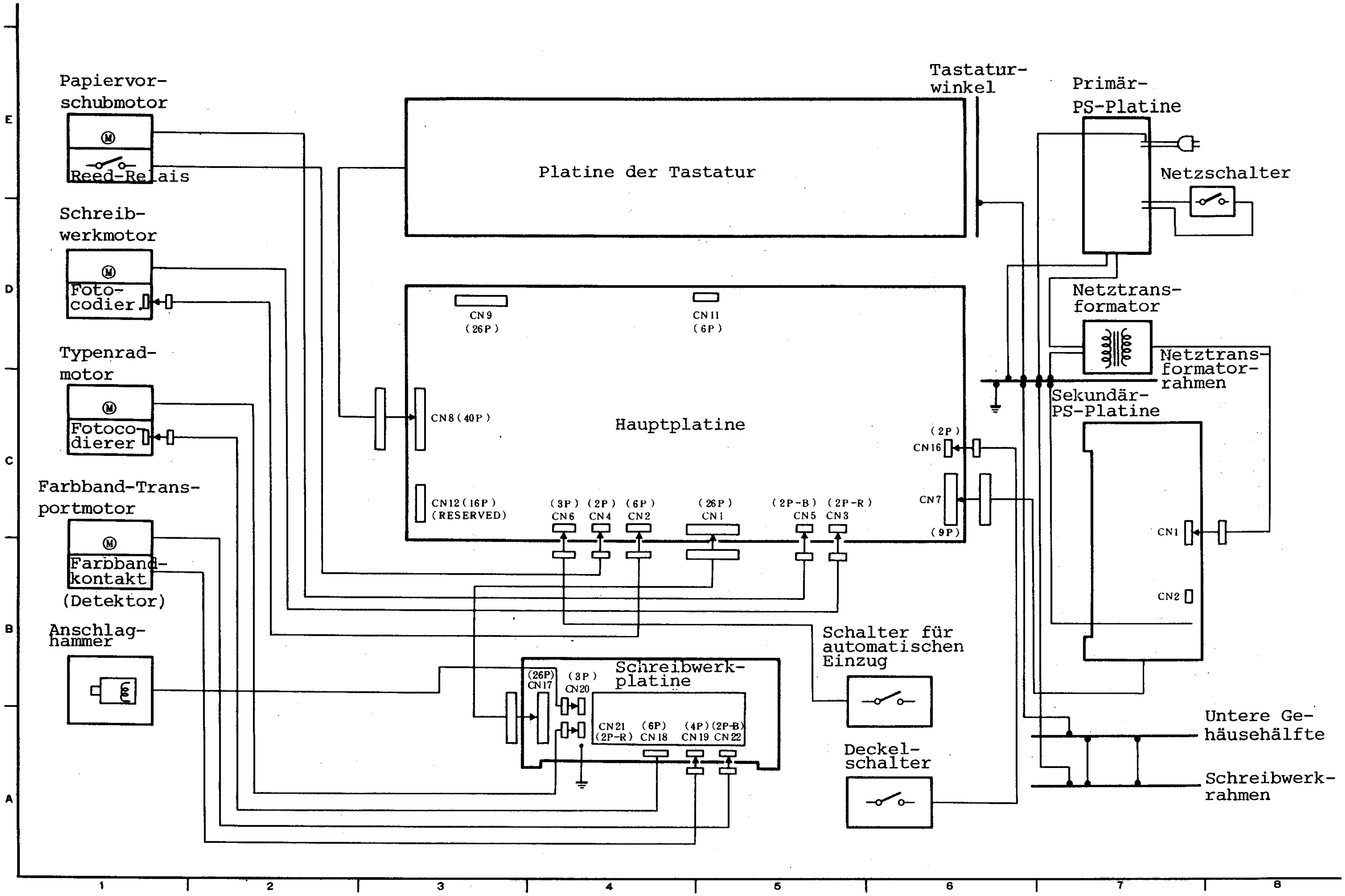
HINWEIS: Die Instandsetzung der Platine ist in "Sharp Policies and Procedures manual" beschrieben.

Entfernen der Hauptplatine von Modell ZX-500:

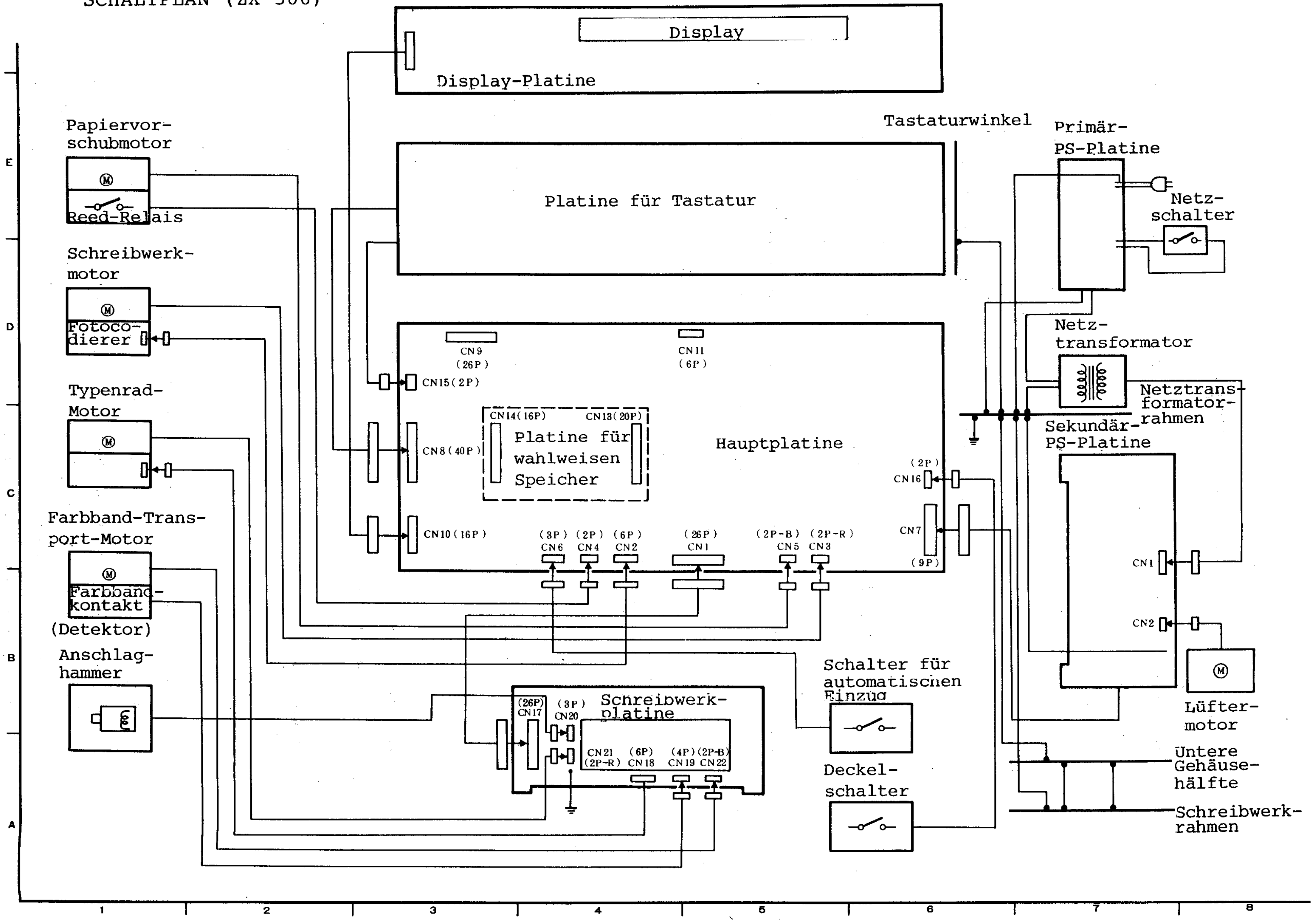
Obigen Schritt a) durchführen.
Siehe Fig. A-3.

b) Befestigungsschraube (Z) herausdrehen.

SCHALTPLAN (ZX-400)


Papiervor-schubmotor
Reed-Relais
Schreib-werkmotor
Foto-codier
Typenrad-motor
Fotoco-dierer
Farbband-Trans-portmotor
Farbband-kontakt
(Detektor)
Anschlag-hammer
Platine der Tastatur
Tastatur-winkel
Primär-PS-Platine
Netzschalter
Netztrans-formator
Netztrans-formator-rahmen
Sekundär-PS-Platine
CN1
CN2
Hauptplatine
CN9 (26P)
CN11 (6P)
CN8 (40P)
CN12 (16P) (RESERVED)
(3P) CN6
(2P) CN4
(6P) CN2
(26P) CN1
(2P-B) CN5
(2P-R) CN3
(2P) CN16
CN7 (9P)
Schalter für automatischen Einzug
Deckel-schalter
Schreibwerk-platine
(26P) CN17
(3P) CN20
CN21 (2P-R)
(6P) CN18
(4P) CN19
(2P-B) CN22
Untere Ge-häusehälfte
Schreibwerk-rahmen
E
D
C
B
A
1
2
3
4
5
6
7
8

SCHALTPLAN (ZX-500)


Display
Display-Platine
Platine für Tastatur
Tastaturwinkel
Primär-PS-Platine
Netzschalter
Netztransformator
Netztransformatorrahmen
Sekundär-PS-Platine
CN1
CN2
Lüftermotor
Hauptplatine
CN9 (26P)
CN11 (6P)
CN15 (2P)
CN8 (40P)
CN10 (16P)
CN14 (16P)
CN13 (20P)
Platine für wahlweisen Speicher
(3P) CN6
(2P) CN4
(6P) CN2
(26P) CN1
(2P-B) CN5
(2P-R) CN3
(2P) CN16
CN7 (9P)
Papiervorschubmotor
Reed-Relais
Schreibwerkmotor
Fotocodierer
Typenrad-Motor
Farbband-Transport-Motor
Farbbandkontakt
(Detektor)
Anschlaghammer
Schreibwerkplatine
(26P) CN17
(3P) CN20
CN21 (2P-R)
(6P) CN18
(4P) CN19
(2P-B) CN22
Schalter für automatischen Einzug
Deckelschalter
Untere Gehäusehälfte
Schreibwerkrahmen
E
D
C
B
A
1
2
3
4
5
6
7
8

3. AUSBAU DER PLATINE FÜR DISPLAY

Zum Ausbau dieser Platine bei Modell ZX-500 wie folgt verfahren:

a) Die Hauptplatine wie auf Seite 2-2 beschrieben, ausbauen. Siehe Fig. A-3 (Seite 2-2).

b) Die beiden Schrauben (Y) aus der Display-Platine entfernen.

c) Abstandshalter entfernen und die Platine herausnehmen.

HINWEIS: Die Instandsetzung der Leiterplatte wird im "Sharp Policies and Procedures manual" beschrieben.

4. NETZTEIL

4.1. SCHALTUNGSBESCHREIBUNG

Das Netzteil der Schreibmaschinenserie ZX besteht aus drei Hauptbaugruppen:

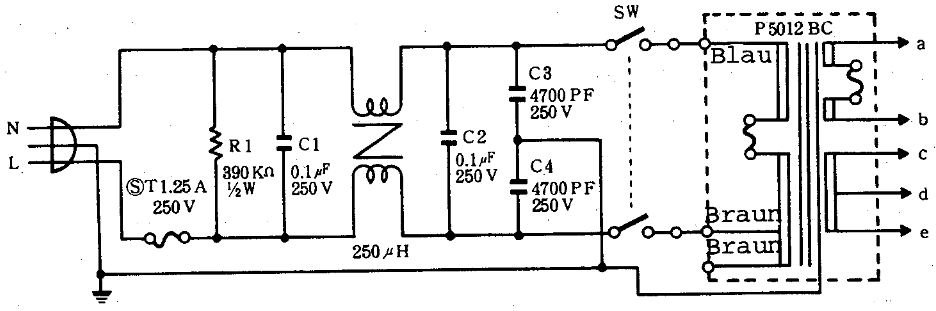
a) Netzfilter
b) Netztransformator
c) Sekundärstromversorgung

4.1.1. NETZFILTER

Siehe nachstehendes Schaltbild.

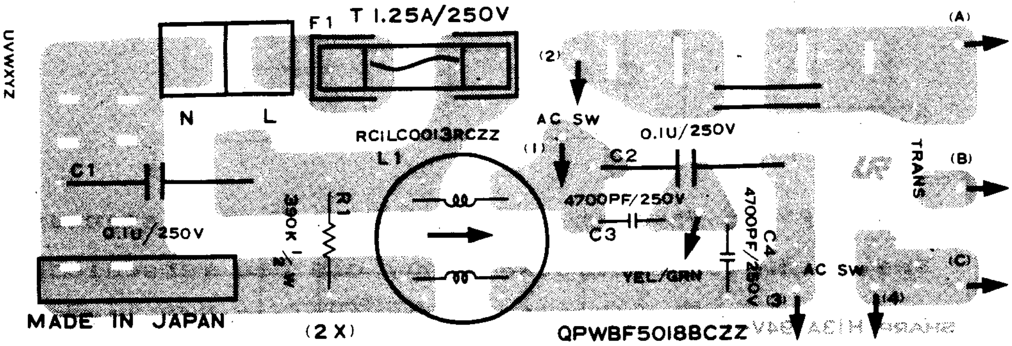
Der Netzfilter dient zur wirkungsvollen Ausblendung von Störimpulsen, die über das Stromnetz zum Netztransformator gelangen. Die Schaltung besteht aus einer Anzahl von Kondensatoren und einer Drosselspule. Der Ausgang ist mit der Primärseite des Netztransformators durch den EIN/AUS Schalter verbunden.

(2) Eingang bei Modell für 220V, WS.


SW
P5012 BC
Blau
Braun
Braun
a
b
c
d
e
N
L
R1
390 KΩ
½ W
C1
0.1μF
250 V
ⓈT1.25 A
250 V
250μH
C2
0.1μF
250 V
C3
4700 PF
250 V
C4
4700 PF
250 V

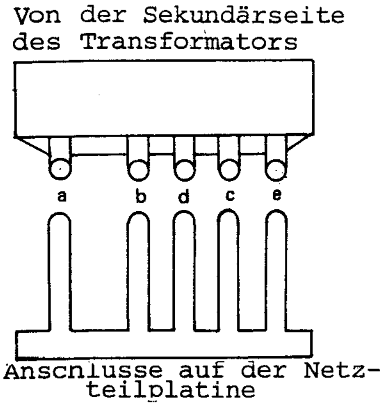
Die folgende Abbildung zeigt die Lage der einzelnen Bauteile auf der Primärnetzteil-Leiterplatte.

(2) 220 V


UVWXYZ
F1 T 1.25A/250V
N
L
(2)
AC SW
(1)
RC1LC0013RCZZ
L1
0.1U/250V
C2
4700PF/250V
C3
C4
4700PF/250V
YEL/GRN
AC SW
(3)
(4)
(A)
(B)
(C)
TRANS
C1
0.1U/250V
R1
390K ½W
MADE IN JAPAN
(2X)
QPWBF5018BCZZ

4.1.2. NETZTRANSFORMATOR

Der Netztransformator ist primärseitig durch eine auf der Primärnetzteilplatine angebrachte Glasrohr-Feinsicherung gegen Überstrom geschützt. Außerdem befinden sich im Transformator zwei Thermosicherungen als zusätzlicher Schutz gegen Überlastung. Falls eine dieser Thermosicherungen durchbrennt, muß der gesamte Transformator ausgetauscht werden, da die Sicherungen nicht von außen zugänglich sind. Der Transformator setzt die primärseitige Netzspannung in die nachstehend aufgeführten Betriebsspannung um.


Von der Sekundärseite des Transformators
a
b
d
c
e
Anschlüsse auf der Netzteilplatine

a) Spannung

Anschluß	Leerlaufspannung	Nennspannung
c + d	AC25.6 ± 0.5V	DC + 30.4 ± 1.5V
e + d	AC25.6 ± 0.5V	DC – 30.4 ± 1.5V
a + b	AC10.8 ± 0.3V	DC 11.8 ± 0.6V

b) Thermosicherung

Eingangs-Wechsel-spannung	Betriebs-temperatur	Transformator-Teil-Nr.
220/240V	132 + 0 – 6°C	RTRNP5012BCZZ

Fig. B-7

4.1.3. Sekundärstromversorgung

Die auf der Vorseite beschriebene Wechselspannung speist die Sekundärschaltung, die die verschiedenen Versorgungs-Gleichsspannungen für die PWB liefert. Für den Betrieb der Schreibmaschinen aus der ZX Serie sind fünf verschiedenen Versorgungsspannung erforderlich. Nämlich: +5 V, +12 V, -12 V, +24 V und -24 V. Außerdem liefert diese Schaltung ein invertiertes P-OFF-Signal an die CPU auf der Logikplatine. Dieses Signal informiert die CPU, ob die Netzspannung ein- oder ausgeschaltet ist. Die CPU kann somit beim Ausschalten des Stroms ihren Speicherinhalt an einen der RAM-Speicher weitergeben.

a) Die +5 V, ±12 V, ±24 V und P-OFF-Schaltungen
Die +5V- und P-OFF-Signale gehen zu den Pins (a) und (b) an der Sekundärseite des Transformators.

b) LÜFTERMOTOR
Der Lüftermotor wird von der Haupt-CPU (UPD7800F) auf der Hauptplatine aus gesteuert. Das Schema ist auf Seite 2-8 dargestellt. Der Transistor Q2 und der Widerstand R1 dienen zur Strombegrenzung bei eingeschalteter ZX-500, sind aber außer Betrieb, wenn der Lüftermotor nicht arbeitet. Der Motor schaltet sich ein, wenn mit dem Schreiben begonnen wird. Gleichzeitig erfolgt eine Strombegrenzung des Lüftermotors auf 200 mA. Nach dem letzten Tastenanschlag läuft der Lüftermotor noch etwa 15 Sekunden weiter.

4.2. AUSBAU

Siehe Fig. A-4.

a) Die Schraube (L5) und das Massekabel (J6) entfernen.

b) Das Kabel von den Kabelschellen M und N abnehmen.

c) Stecker (CN1) und (CN2) lösen. (CN2 nur bei Modell ZX-500)

d) Die fünf Schrauben (R) herausdrehen.

e) Die Netzteil in Pfeilrichtung (S) herausziehen und aus den Halterungen (T) lösen.

AUSBAU DER PRIMÄR-NETZTEILPLATINE:

a) Massekabel an der Hauptplatinen-Zugangsplatte lösen.

b) EIN-/AUS-Schalter abziehen.

c) Den schwarzen Kasten (Netzfilterschaltung) über dem Transformator anheben und herausnehmen.

d) Die vier Schrauben, mit denen der Transformator am Gehäuseunterteil befestigt ist, herausdrehen.

e) Die Schraube, mit der das Netzkabel am Gehäuseunterteil befestigt ist, herausdrehen.

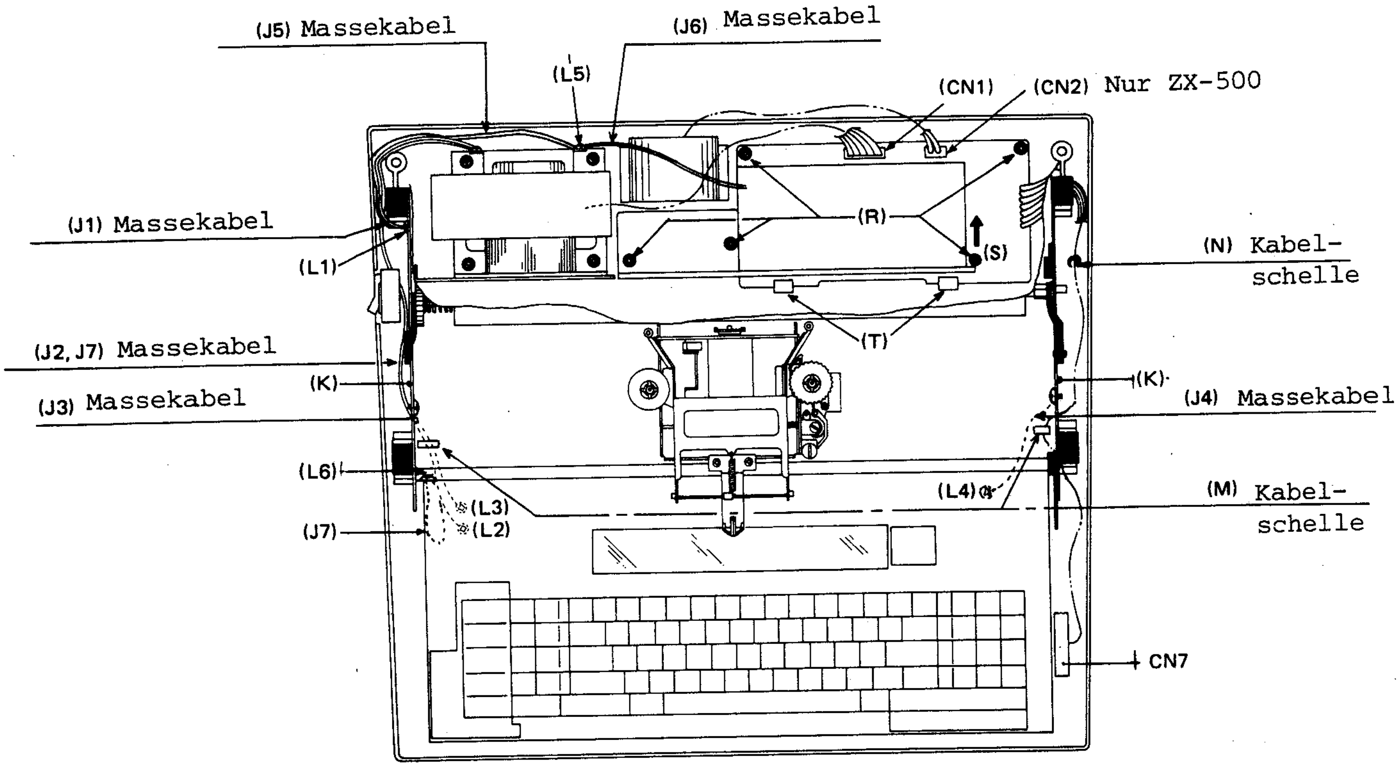

(J5) Massekabel
(J6) Massekabel
(L5)
(CN1)
(CN2) Nur ZX-500
(J1) Massekabel
(L1)
(R)
(S)
(N) Kabel-schelle
(T)
(J2, J7) Massekabel
(K)
(J3) Massekabel
(K)
(J4) Massekabel
(L6)
(L3)
(L2)
(J7)
(L4)
(M) Kabel-schelle
CN7

Fig. A-4

5. TASTATUR

5.1. BESCHREIBUNG DER TASTATUR

Die Tastatur der Schreibmaschinen der Serie ZX wird von der Haupt-CPU auf der PWB gesteuert. Die CPU sendet vier selektive Wahlleitungen in den Dekoder-Chip auf der Tastaturplatine. Der Dekoder sendet 10 Stobe-Leitungen aus, die sich an verschiedenen Punkten der Tastatur-Matrix mit den Rückführungsleitungen RL0 bis RL7 schneiden. Diese Rückführungsleitungen laufen zu einem Komparator, der aus den beiden Chips UPC339 auf der PWB besteht. Von jedem dieser Komparatoren führen wieder vier Leitungen zur Haupt-CPU. Zusammen bilden sie ein 8-Bit-Signal, aus dem zu erkennen ist, welche Taste gedrückt wurde.

5.2. FEHLERSUCHE

Falls sich eine Anzahl von Tasten der Tastatur nicht mehr drücken läßt, ist zunächst festzustellen, ob sich diese Tasten in der gleichen Reihe oder Spalte befinden. Liegen die Tasten in der gleichen Spalte, ist wahrscheinlich der Dekoder auf der Tastaturplatine defekt. Liegen die Tasten jedoch in der gleichen Reihe, ist der Fehler entweder im Komparator-Chip zu suchen, der in der zugehörigen Rückführungsleitung liegt, oder in der Haupt-CPU auf der PWB. Läßt sich nur eine bestimmte Taste nicht betätigen, ist wahrscheinlich der zugeordnete Tastenschalter defekt und muß ausgetauscht werden.

5.3. DIP-SCHALTER

Der auf der Hauptplatine angeordnete 8-Bit-DIP-Schalter ist je nach Bestimmungsland der Schreibmaschine entsprechend folgender Tabelle eingestellt worden. Beim Austausch der Hauptplatine ist darauf zu achten, daß der DIP-Schalter je nach Land eingestellt wurde. Einzelheiten darüber im Service-Handbuch Nr. 3.

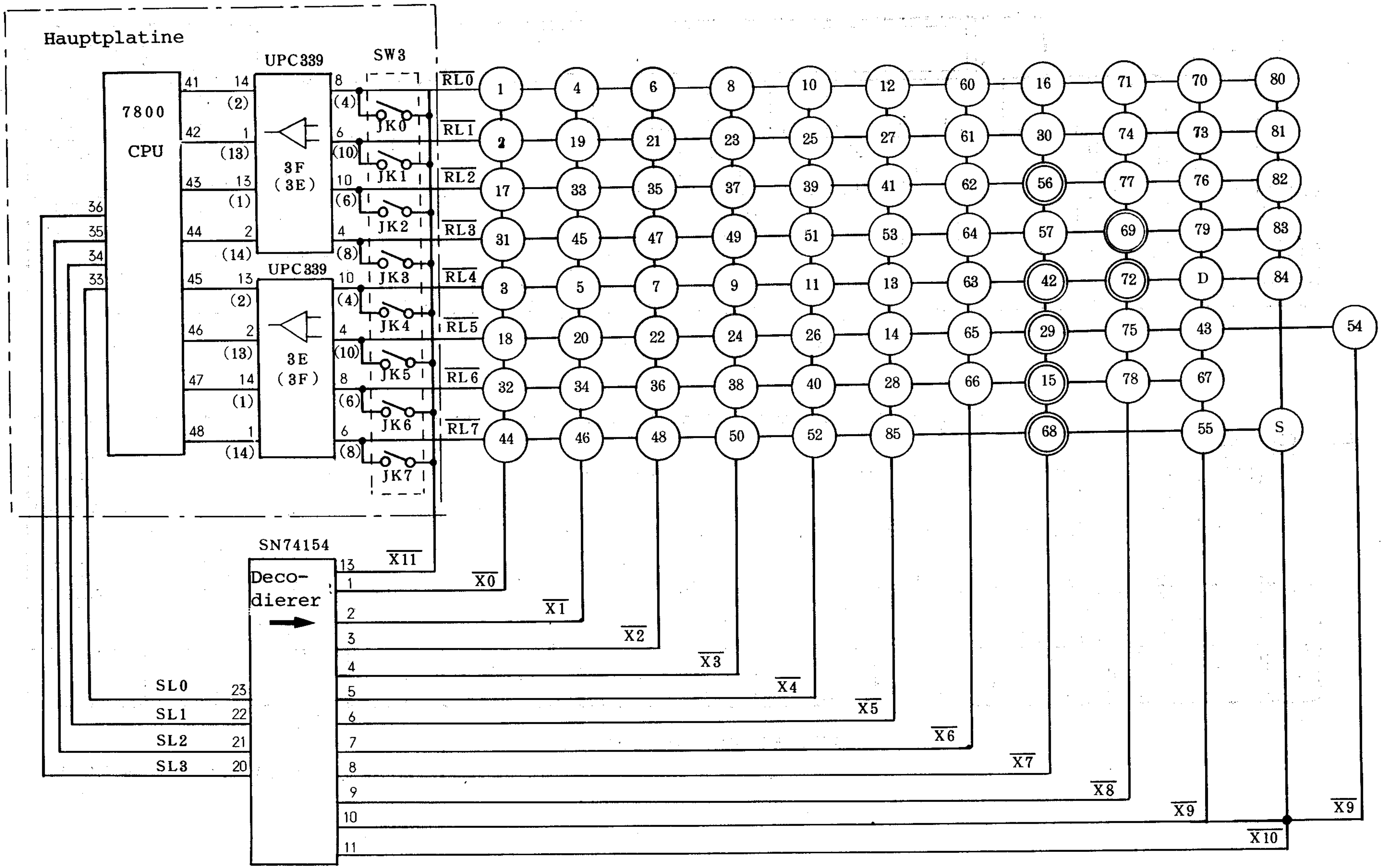
Gruppe		Bestimmungsland	Einstellung des JK-Schalters							
			0	1	2	3	4	5	6	7
A	0	Schweden	0	0	0	0	0	1	x	x
	1	Finnland	1	0	0	0	0	1	x	x
	2	Dänemark	0	1	0	0	0	1	x	x
	3	Norwegen	1	1	0	0	0	1	x	x
	4	Island	0	0	1	0	0	1	x	x
	5									
	6									
	7									
C	0	USA, Australien	0	0	0	0	0	0	x	x
	1	Kanada(franz.spr.)	1	0	0	0	0	0	x	x
	2	Kanada(engl.spr.)	0	1	0	0	0	0	x	x
	3									
	4									
	5									
	6									
	7									
E	0	Südafrika	0	0	0	0	0	0	x	x
	1									

Gruppe		Bestimmungsland	Einstellung des JK-Schalters							
			0	1	2	3	4	5	6	7
B	0	Frankreich	0	0	0	0	0	1	x	x
	1	Belgien	1	0	0	0	0	1	x	x
	2	Italien	0	1	0	0	0	1	x	x
	3	Spanien	1	1	0	0	0	1	x	x
	4	Portugal	0	0	1	0	0	1	x	x
	5									
	6									
	7									
D	0									
	1	Deutschl.,Oesterr.	1	0	0	0	0	1	x	x
	2	Niederlande	0	1	0	0	0	1	x	x
	3	Schweiz(deutschsp.	1	1	0	0	0	1	x	x
	4	Schweiz(frz.spr.)	0	0	1	0	0	1	x	x
	5	GB	1	0	1	0	0	0	x	x
	6									
	7									

HINWEISE: (1) x : belanglos
(2) 1: EIN, 0: AUS

(3) (E): Englisch
(F): Französisch
(G): Deutsch

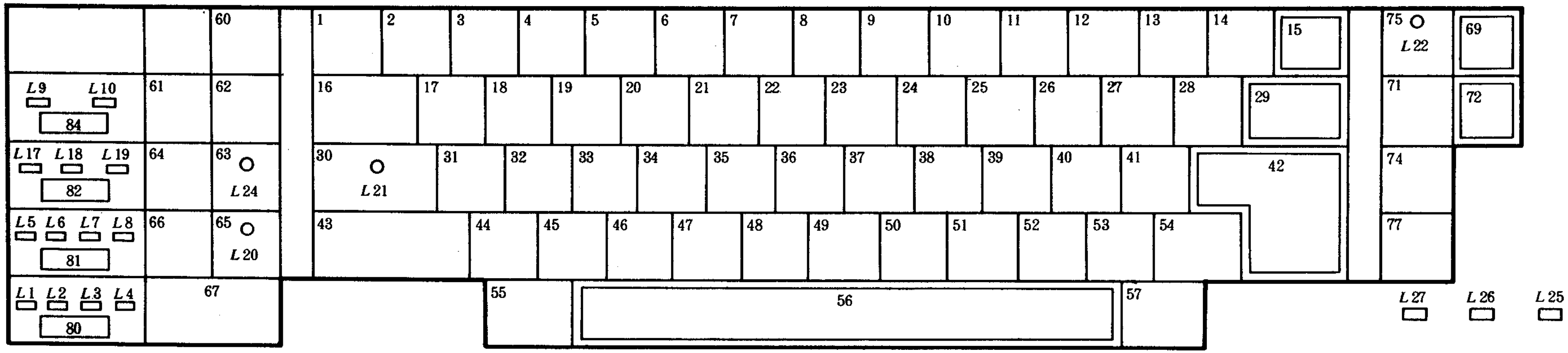
BLOCKSCHALTBILD DER TASTATUR


Hauptplatine
7800
CPU
41
42
43
44
45
46
47
48
36
35
34
33
UPC339
3F
(3E)
UPC339
3E
(3F)
14 (2)
1 (13)
13 (1)
2 (14)
13 (2)
2 (13)
14 (1)
1 (14)
8 (4)
6 (10)
10 (6)
4 (8)
10 (4)
4 (10)
8 (6)
6 (8)
SW3
JK0
JK1
JK2
JK3
JK4
JK5
JK6
JK7
RL0
RL1
RL2
RL3
RL4
RL5
RL6
RL7
1 4 6 8 10 12 60 16 71 70 80
2 19 21 23 25 27 61 30 74 73 81
17 33 35 37 39 41 62 56 77 76 82
31 45 47 49 51 53 64 57 69 79 83
3 5 7 9 11 13 63 42 72 D 84
18 20 22 24 26 14 65 29 75 43 54
32 34 36 38 40 28 66 15 78 67
44 46 48 50 52 85 68 55 S
SN74154
Deco-
dierer
13
1
2
3
4
5
6
7
8
9
10
11
X11
X0
X1
X2
X3
X4
X5
X6
X7
X8
X9
X9
X10
SL0 23
SL1 22
SL2 21
SL3 20

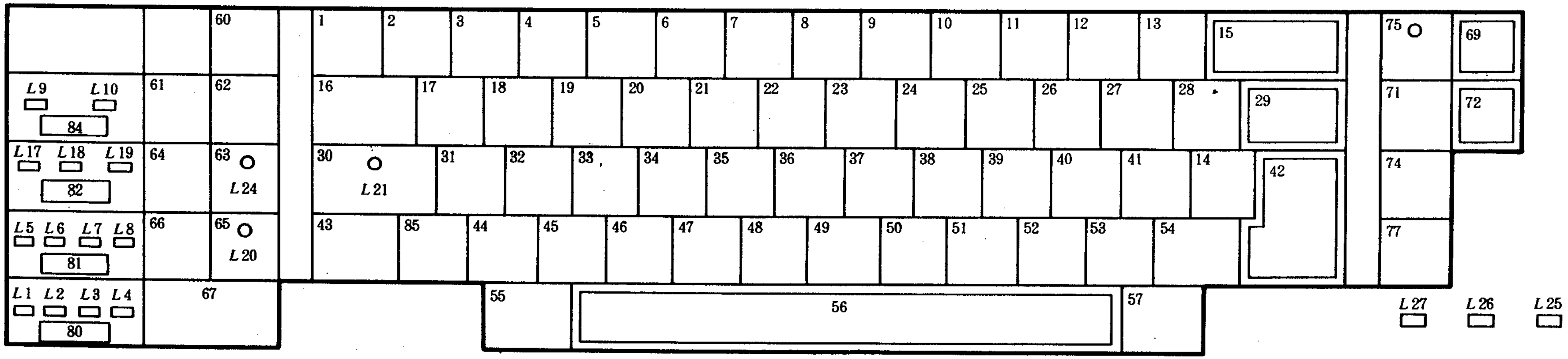
HINWEIS: Pin-Nummern in Klammern gelten für ZX-500.

ANORDNUNG (ZX-400)

ZX-400 mit 48 Tasten

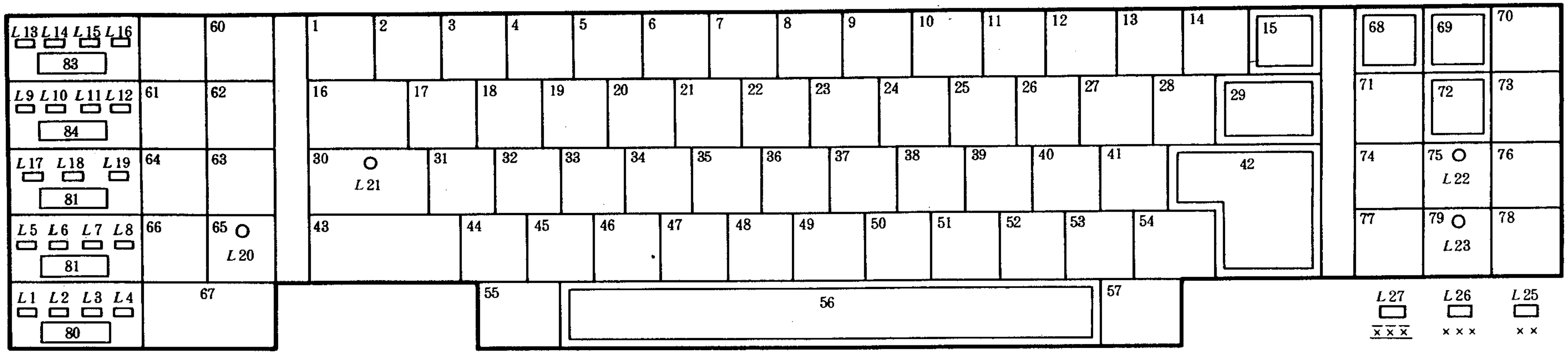

60
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
75 L22
69
L9 L10 84
61 62
16 17 18 19 20 21 22 23 24 25 26 27 28 29
71
72
L17 L18 L19 82
64 63 L24
30 L21 31 32 33 34 35 36 37 38 39 40 41 42
74
L5 L6 L7 L8 81
66 65 L20
43 44 45 46 47 48 49 50 51 52 53 54
77
L1 L2 L3 L4 80
67
55 56 57
L27 L26 L25

ZX-400 mit 47 Tasten

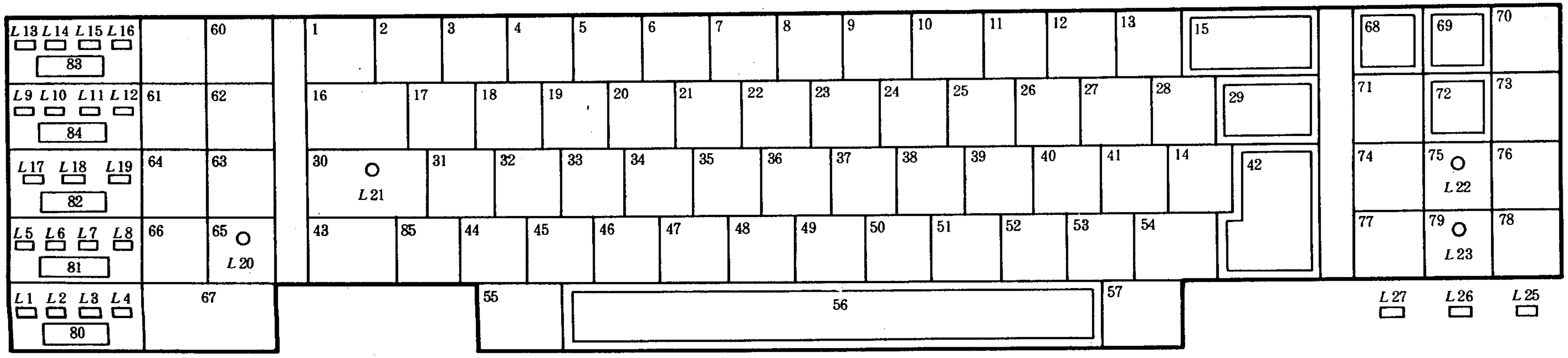

60
1 2 3 4 5 6 7 8 9 10 11 12 13 15
75
69
L9 L10 84
61 62
16 17 18 19 20 21 22 23 24 25 26 27 28 29
71
72
L17 L18 L19 82
64 63 L24
30 L21 31 32 33 34 35 36 37 38 39 40 41 14 42
74
L5 L6 L7 L8 81
66 65 L20
43 85 44 45 46 47 48 49 50 51 52 53 54
77
L1 L2 L3 L4 80
67
55 56 57
L27 L26 L25

ANORDNUNG (ZX-500)

ZX-500 mit 48 Tasten


L13 L14 L15 L16
83
L9 L10 L11 L12
84
L17 L18 L19
81
L5 L6 L7 L8
81
L1 L2 L3 L4
80
60 61 62 64 63 66 65 L20 67
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
16 17 18 19 20 21 22 23 24 25 26 27 28 29
30 L21 31 32 33 34 35 36 37 38 39 40 41 42
43 44 45 46 47 48 49 50 51 52 53 54
55 56 57
68 69 70 71 72 73 74 75 L22 76 77 79 L23 78
L27 L26 L25
x x x
x x x
x x

ZX-500 mit 47 Tasten


L13 L14 L15 L16
83
L9 L10 L11 L12
84
L17 L18 L19
82
L5 L6 L7 L8
81
L1 L2 L3 L4
80
60 61 62 64 63 66 65 L20 67
1 2 3 4 5 6 7 8 9 10 11 12 13 15
16 17 18 19 20 21 22 23 24 25 26 27 28 29
30 L21 31 32 33 34 35 36 37 38 39 40 41 14 42
43 85 44 45 46 47 48 49 50 51 52 53 54
55 56 57
68 69 70 71 72 73 74 75 L22 76 77 79 L23 78
L27 L26 L25

III. EINSTELLUNGEN

1. HÖHENEINSTELLUNG VON FARB- UND KORREKTURBAND .... 3 - 1

2. EINSTELLUNG DES FARBBANDTRANSPORTERS .... 3 - 2

3. AUSRICHTEN DES TYPENRANDMOTOR-CODIERERS .... 3 - 3

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1. HÖHENEINSTELLUNG VON FARB- UND KORREKTURBAND

Falls einzelne Zeichen unvollständig oder überhaupt nicht gedruckt werden, ist das Farbband zu hoch oder zu niedrig eingestellt. In diesem Fall wie folgt vorgehen:

a) Eine fortlaufende Zeile, bestehend aus Klammern und Unterstreichungen, wie hier gezeigt, schreiben.

(_ (

b) Das Farbband auf eventuelle Abweichungen vom vorgeschriebenen Abstand "A" überprüfen.

c) Liegt A unter 1 ± 0,3 mm ist, den Farbband-Kassettenhalter nach Lösen der Schrauben (a, b) in Pfeilrichung absenken.

d) Ist A größer als 1 ± 0,3 mm ist, den Farbband-Kassettenhalter nach Lösen der Schrauben (a, b) anheben.

e) Die Schritte a) bis d) solange wiederholen, bis der Abstand "A" zwischen der Unterkante des Farbbandes und der Unterstreichung genau 1 ± 0,3 mm beträgt.

f) Die Schrauben (a, b) wieder anziehen.

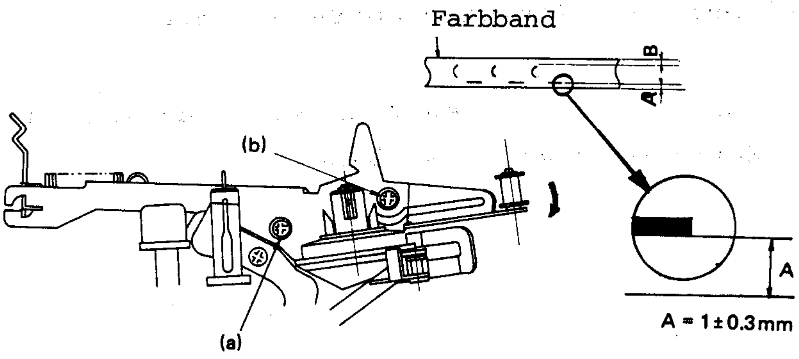


Fig. A

HINWEIS: Durch diese Einstellung wird gleichzeitig die relative Lage des Farbband-Kassettenhalters in Bezug zum Nockenstößel verändert

2. EINSTELLUNG DES FARBBANDTRANSPORTERS

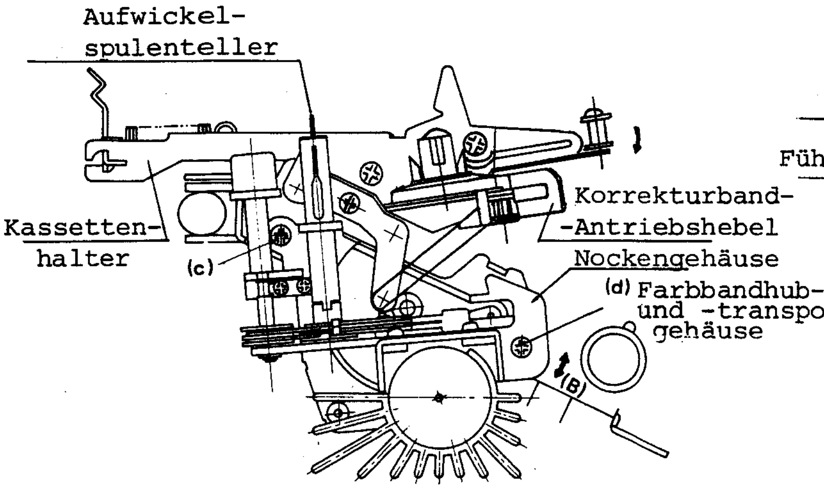

Aufwickel-spulenteller
Kassetten-halter
(c)
Korrekturband--Antriebshebel
Nockengehäuse
(d) Farbbandhub- und -transport-gehäuse
(B)

Fig. B

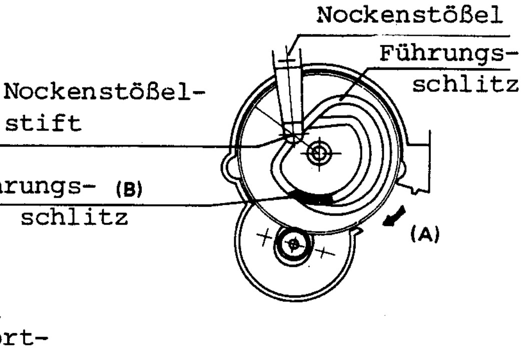

Nockenstößel
Führungs-schlitz
Nockenstößel-stift
Führungs- (B) schlitz
(A)

Fig. C

Siehe Fig. B und C.

a) Die beiden Schrauben (c) und (d) gemäß Fig. B lockern und den Nocken so weit drehen, bis der Nockenstößel den in Fig. C schwarz eingezeichneten Teil erreicht.

b) Eine Farbbandkassette gemäß Fig. C in den Kassettenhalter einsetzen. Farbbandhub- und -transportgehäuse in Pfeilrichtung B bewegen und so einstellen, bis der Aufwickelspulenteller genau mit dem Mittelpunkt der Aufwickelspule der Kassette übereinstimmt.

HINWEIS: Vorsicht, bei dieser Einstellung kann sich die Schreibwerkplatine lösen.

3. AUSRICHTEN DES TYPENRADMOTOR-CODIERERS

Die an der Rückseite des Typenradmotors angebrachte Codierscheibe ist auf genaue Übereinstimmung des Anschlaghammers mit den einzelnen Typen des Typenrades einzustellen. Siehe folgende Abbildung.

a) Die vier Schrauben (A) bei eingeschalteter Maschine lockern und die Codierscheibe so einstellen, bis der Anschlaghammer genau mit einer Speiche des Typenrades übereinstimmt, d.h. fluchtet.

b) Die Schrauben (A) wieder fest anziehen.

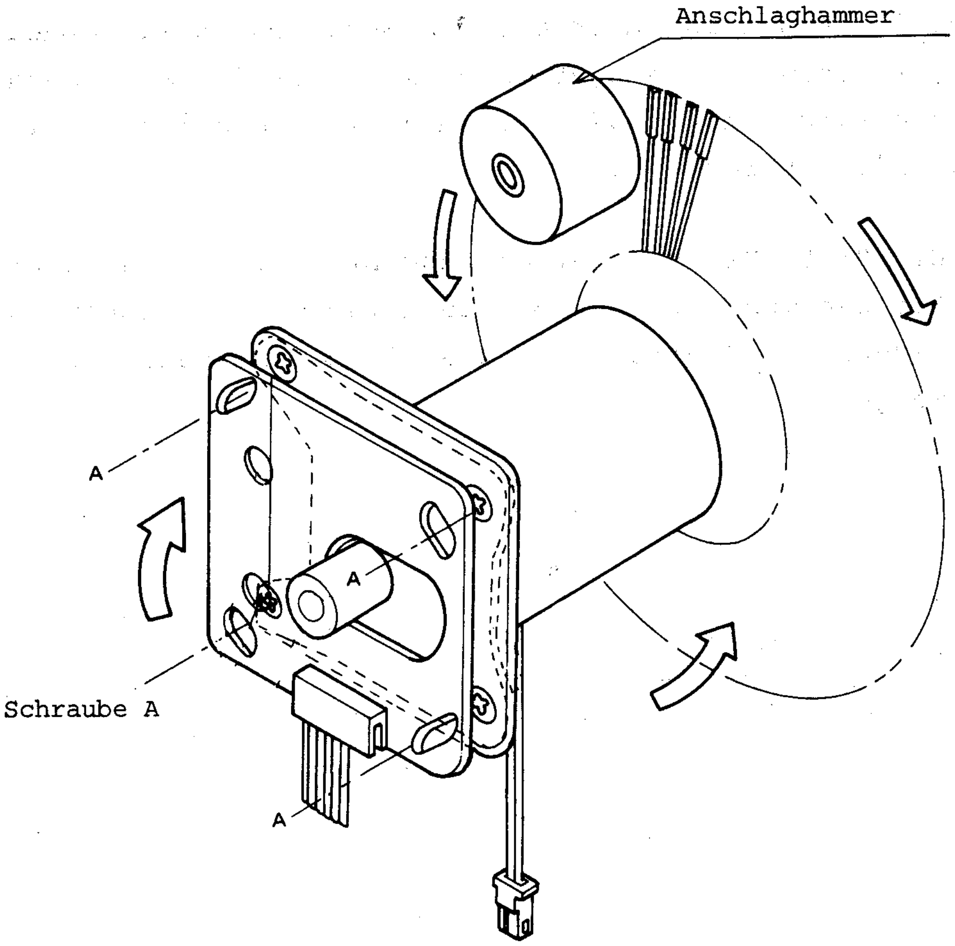


Fig. E-1

c) Die Einstellung bei ausgeschalteter Maschine mit anderen Typen zur Kontrolle wiederholen.

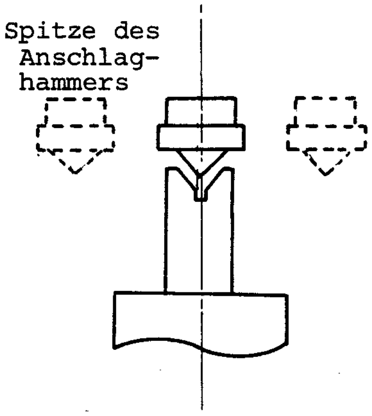

Spitze des Anschlaghammers

Fig. E-2

4. EINSTELLUNG DES ANSCHLAGHAMMER-ELEKTROMAGNETEN

Wenn der Anschlaghammer aus dem Schreibwerk ausgebaut oder der Elektromagnet ausgetauscht wird, sind die folgenden Einstellungen zur Gewährleistung eines exakten Schriftbildes erforderlich.

a) Ein Blatt Papier einlegen und mit dem Dezimaltabultor 4 Spalten von gleicher Breite zwischen dem linken und rechten Rand einsetzen, wie die nachstehende Abbildung zeigt.

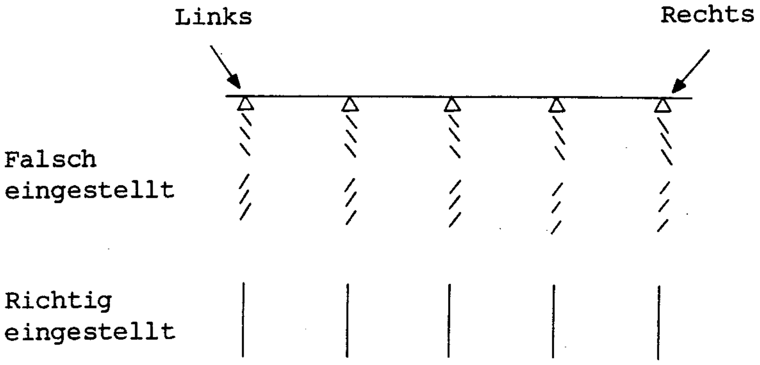

Links
Rechts
Falsch eingestellt
Richtig eingestellt

Fig. E-3

Siehe folgende Abbildungen

b) Die beiden Schrauben (b2) lockern. Dann Teil (B) des Elektromagneten mit einer Spitzzange greifen und so weit im oder entgegengesetzt dem Uhrzeigersinn drehen, bis die senkrechten Linien dem Schriftbilde von Fig. E-3 entsprechen. Die Spitze des Anschlaghammers muß dabei, von oben gesehen, genau senkrecht stehen.

HINWEIS: Falls eine genaue Einstellung nicht möglich ist, die Maschine einschalten und Teil A, wie auf Fig. E-4 gezeigt, in Pfeilrichtung "C" schieben. Falls die V-förmige Nut des Anschlaghammers nicht bündig mit dem V-förmigen Teil des Typenrades übereinstimmt, wie Fig. E-6 zeigt, sind (D) und (E) auf Fig. E-5 nicht richtig eingestellt. Wie diese Teile zu justieren sind, geht aus den Einstellanweisungenn für den Typenradmotor hervor.

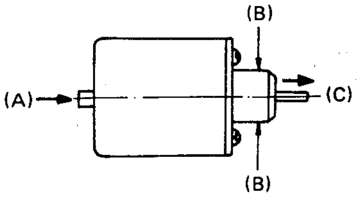


Fig. E-4

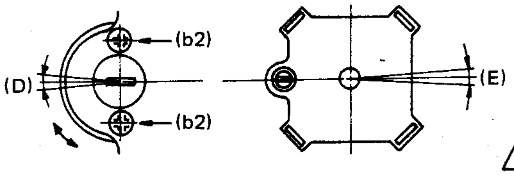


Fig. E-5

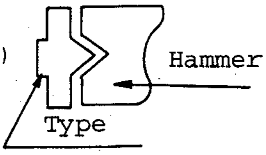


Fig. E-6

5. KOPIEN-VORWAHLHEBEL

Der auf der rechten Seite der vorderen Schreibwerk-Führungsschiene angebrachte Kopien-Vorwahlhebel läßt sich in drei verschiedene Stellungen bringen. Bei Normalbetrieb befindet sich dieser Hebel am vorderen Anschlag, wie Fig. F-1 zeigt. Die beiden anderen Stellungen des Hebel sind von der Anzahl der Kopien, d.h. der einzelnen Bögen und Kohlepapier-Zwischenlagen abhängig.

Durch Bewegen des Hebels in Pfeilrichtung wird die Welle "E" gedreht. Da es sich um eine Exzenterwelle handelt, bewirkt eine Hebelverstellung in Pfeilrichtung das Absenken des hinteren Schreibwerkteiles. Dadurch vergrößert sich der Abstand zwischen Walze und Typenrad, so daß eine größere Zahl von Kopien gleichzeitig geschrieben werden kann. Siehe Fig. F-2.

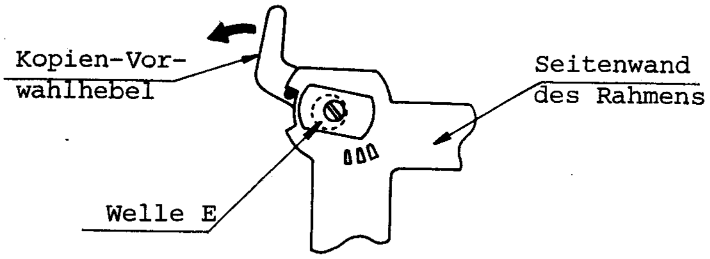

Kopien-Vorwahlhebel
Seitenwand des Rahmens
Welle E

Fig. F-1

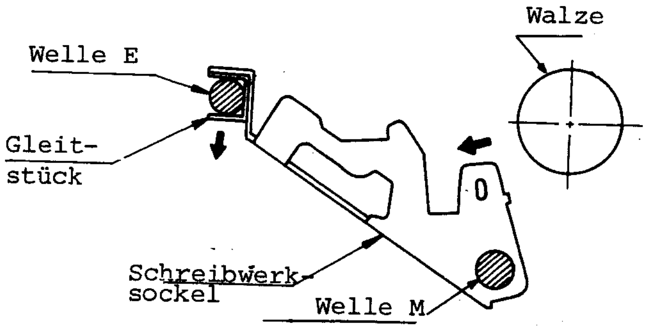

Walze
Welle E
Gleitstück
Schreibwerksockel
Welle M

Fig. F-2

6. EINSTELLUNG DES ABSTANDES ZWISCHEN ANSCHLAGHAMMER UND WALZE UND DER SCHIEBEWELLE "E"

Mit der Parallel-Lehre läßt sich die Parallelführung zwischen der Welle "E" und der Walze überprüfen. Dieses Spezialwerkzeug dient außerdem zur Einstellung des Abstandes zwischen Walze und Anschlaghammer. Da diese Einstellung für die Qualität des Schriftbildes von besonderer Bedeutung ist, sollte sie mit größter Sorgfalt durchgeführt werden.

6.1. VORBEREITUNG ZUR EINSTELLUNG (MIT PARALLEL-LEHRE)

a) Die beiden Schrauben (b4) wie nachstehend gezeigt aus der Anschlaghammer-Abdeckung (61) herausdrehen.

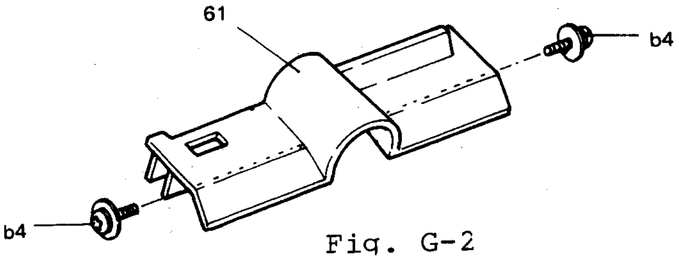
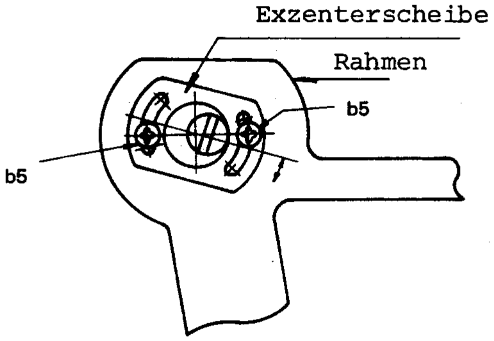


Fig. G-2

b) Hammerabdeckung zur Walze schieben, anheben und entfernen.

c) Die vier Schrauben (b5), mit den die Exzenterschreiben an den beiden Enden der Schiebewelle "E" befestigt sind, lösen.


Exzenterscheibe
Rahmen
b5
b5

d) Kartenhalter (15) wie nachstehend gezeigt ausbauen.

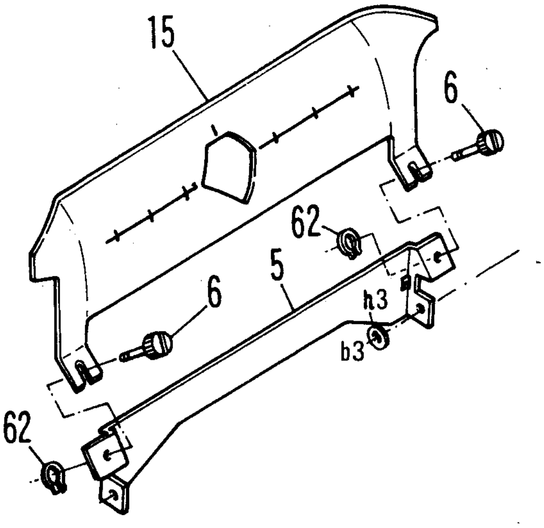

15
6
62
5
6
h3
b3
62

Fig. G-1

e) Die Parallel-Lehre, wie in Fig. L-1 und L-2 gezeigt, anlegen und Exzenterscheibe drehen, bis der Abstand genau 14 mm beträgt. Diese Einstellung ist an beiden Enden der Schiebewelle "E" vorzunehmen. Der zulässige Abstand beträgt 14 ± 0,1 mm.

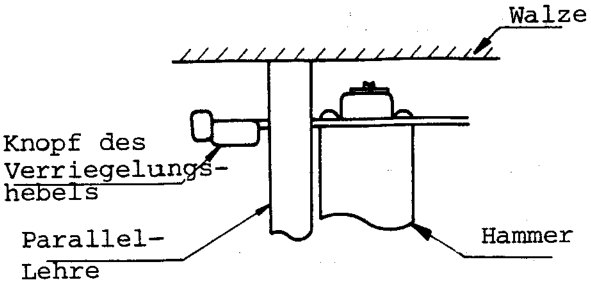

Walze
Knopf des Verriegelungshebels
Parallel-Lehre
Hammer

Fig. L-1
Ansicht von oben

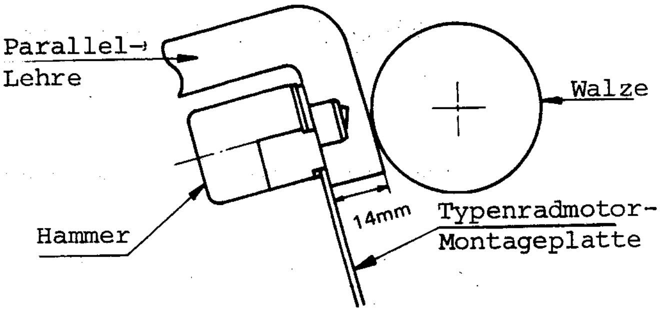

Parallel-Lehre
Walze
Hammer
14mm
Typenradmotor-Montageplatte

Fig. L-2
Seitenansicht

6.2. EINSTELLUNG DES ABSTANDES ZWISCHEN ANSCHLAGHAMMER UND WALZE

Siehe Fig. G-1 und G-2.

a) Kartenhalter (15), wie in Fig. G-1 gezeigt, nach Entfernen der beiden Schrauben (6) ausbauen.

b) Die beiden Schrauben (b4) herausdrehen und die Anschlaghammer-Abdeckung (61) entfernen. Fig. G-2.

c) Den Kopien-Vorwahlhebel, wie auf der Vorseite gezeigt, in die vordere Endstellung bringen.

d) Schreibwerk von Hand nach rechts schieben und die 14mm-Dickenmeßlehre an Punkt (E) in Fig. G-6 einsetzen. Beträgt der Abstand zwischen Walze und Typenradmotor-Montageplatte an Punkt (E) genau 14 mm, ist die Einstellung richtig. Andernfalls wie folgt vorgehen:

Siehe Fig. G-3.

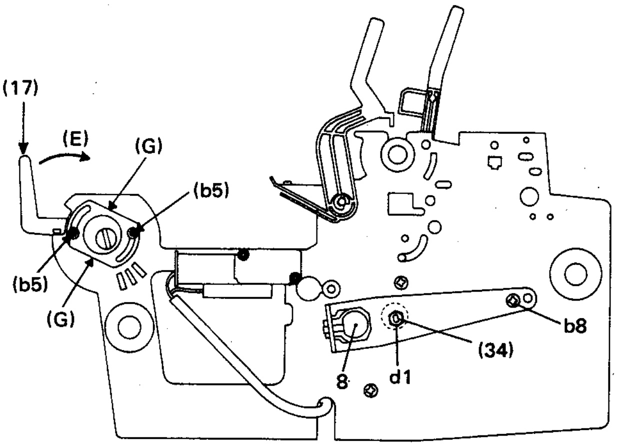
e) Die beiden Schrauben (b5) lockern und die Exzenterscheibe (G) drehen.

f) Den Abstand zwischen Walze und Typenradmotor-Montageplatte mit Hilfe der Parallel-Lehre auf 14 mm einstellen.

g) Die Schrauben (b5) wieder fest anziehen.

h) Die Einstellung auf der linken Seite der Maschine wiederholen.

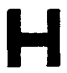
HINWEIS: Zur genauen Einstellung des Abstandes auf der linken Seite muß das Schreibwerk von Hand nach links geschoben werden.



Rechte Seite des Hauptrahmens

7. PARALLELEINSTELLUNG

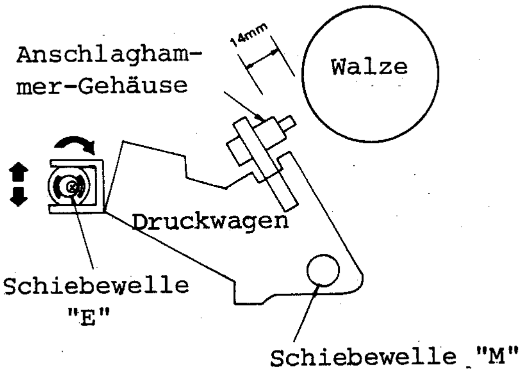
Um ein gleichmäßiges Schriftbild zu gewährleisten, muß die Type des Typenrades beim Anschlag genau parallel auf der Walze auftreffen. Ist dies der Fall, heißt es, das Zeichen "steht auf dem Fuß" oder "schlägt bündig an".



RICHTIGER
ANSCHLAG

FEHLERHAFTER
ANSCHLAG

Diese Einstellung wird durch Lageänderung der Schiebewelle "M" vorgenommen.


Anschlaghammer-Gehäuse
14mm
Walze
Druckwagen
Schiebewelle "E"
Schiebewelle "M"

7.1. VORBEREITUNG

Schreibwerk von Hand nach rechts schieben. Siehe Fig. G-6.

a) Die Schrauben (b8) der Justierplatten an beiden Enden der Welle "M" lösen.

b) Die Kontermutter der Einstellschraube ebenfalls lösen.

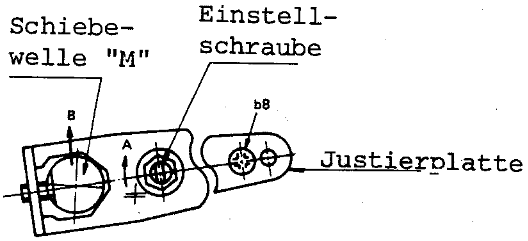

Schiebe-
welle "M"
Einstell-
schraube
B
A
b8
Justierplatte

Fig. G-5

c) Die Parallel-Lehre, wie in Fig. M-1 gezeigt, einsetzen.

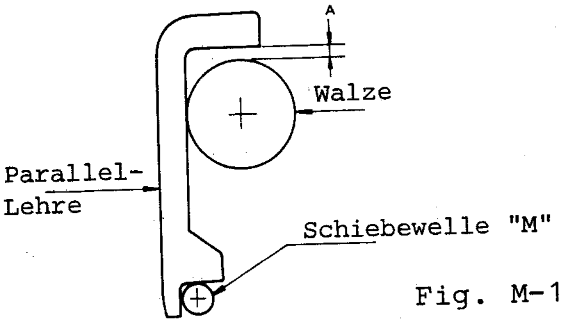

A
Walze
Parallel-
Lehre
Schiebewelle "M"

Fig. M-1

d) Die Einstellschraube gemäß Fig. G-5 so weit drehen, bis der mit der Dickenmeßlehre ermittelte Abstand "A" von Fig. M-1 genau 0,8 mm beträgt.

e) Die Schraube (b8) und die Kontermutter der Einstellschraube wieder fest anziehen.

f) Die gleiche Einstellung auf der linken Seite der Schiebewelle "M" wiederholen.

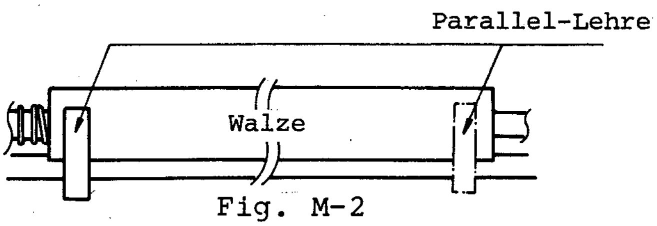

Parallel-Lehre
Walze

Fig. M-2

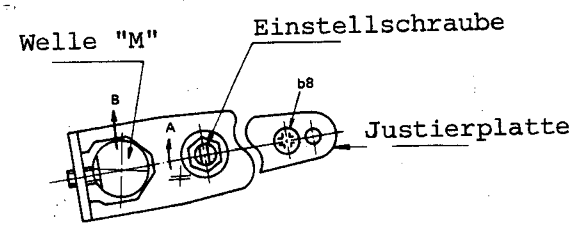
7.2. PARALLELEINSTELLUNG

Vor dieser Einstellung müssen die bereits beschriebenen Einstellungen der Schiebewelle "E" beendet sein.

a) Schreibwerk vom Rand bis zum Mittelpunkt des Schreibwerkrahmens (C) verschieben, so daß es genau über der Öffnung des Flachbandkabels steht. Siehe Fig. G-6.

b) Die Einstellschraube mit einem Gabelschlüssel lösen.

c) Schraube (b8) mit dem Schraubenzieher lösen.


Welle "M"
Einstellschraube
B
A
b8
Justierplatte

d) Die Parallel-Lehre rechts vom schraffiert gezeichneten Teil (E) der nachstehenden Abbildung einsetzen. Dabei darauf achten, daß sich das Schreibwerk direkt über diesem Punkt befindet.

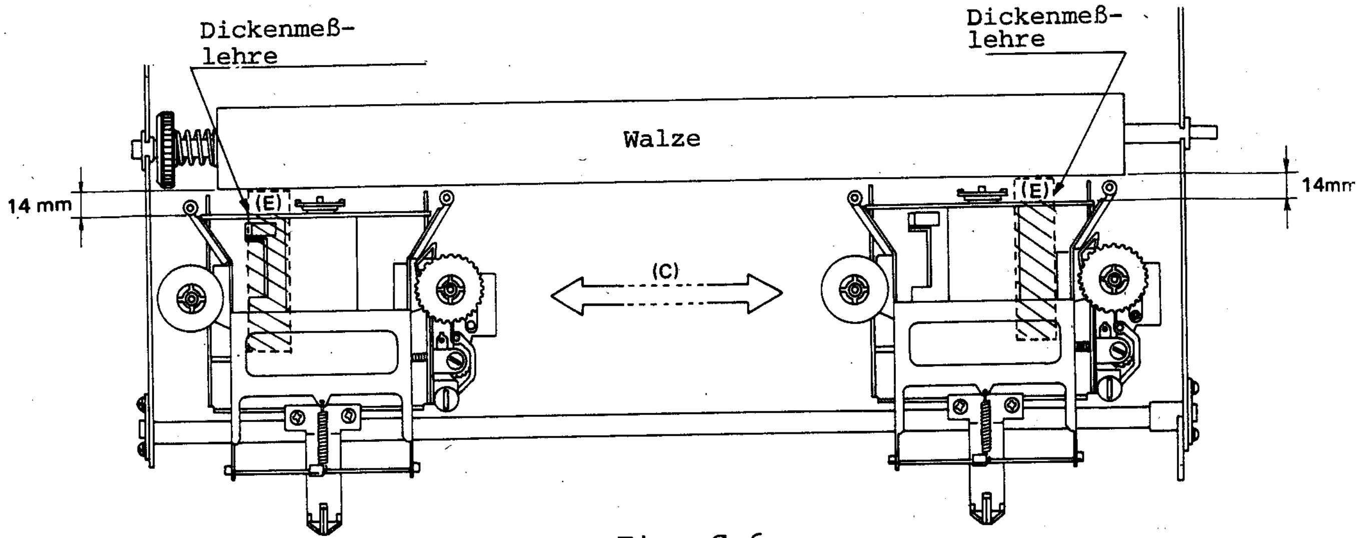

Dickenmeß-lehre
Dickenmeß-lehre
Walze
14 mm
(E)
(E)
(C)
14m

Fig. G-6

Siehe Fig. G-3

e) Die Exzenterschraube (34) so verstellen, bis "M" genau parallel zur Walze verläuft.

f) Die Kontermutter (d1) und die Schraube (b8) wieder anziehen.

Diese Einstellung auf der linken Seite wiederholen und dazu die Parallel-Lehre links von der auf Fig. G-6 schraffiert dargestellten Fläche einsetzen.

g) Die Einstellung überprüfen, indem man eine fortlaufende Reihe großer H's schreibt, die einwandfrei gedruckt sein muß.

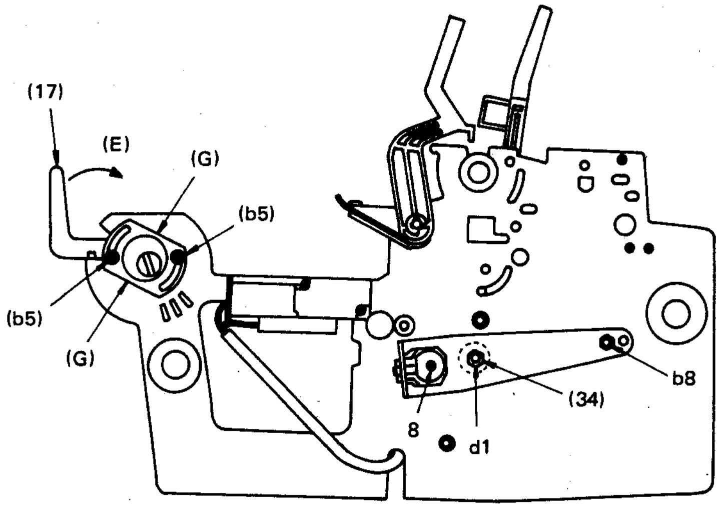


Fig. G-3

8. VORBEREITUNGEN ZUR SERVOEINSTELLUNG UND TYPENRAD- UND SCHREIBWERKMOTOR

a) Das Gehäuse-Oberteil abnehmen und die Tastatur aufrecht stellen, wie auf Seite 1-1 und Seite 1-5 (nur Aufrechtstellen der Tastatur) beschrieben.

b) Die Prüfgeräte (CHECKER) I und II, wie in Fig. S, T und U gezeigt, mit der Schreibmaschine verbinden.

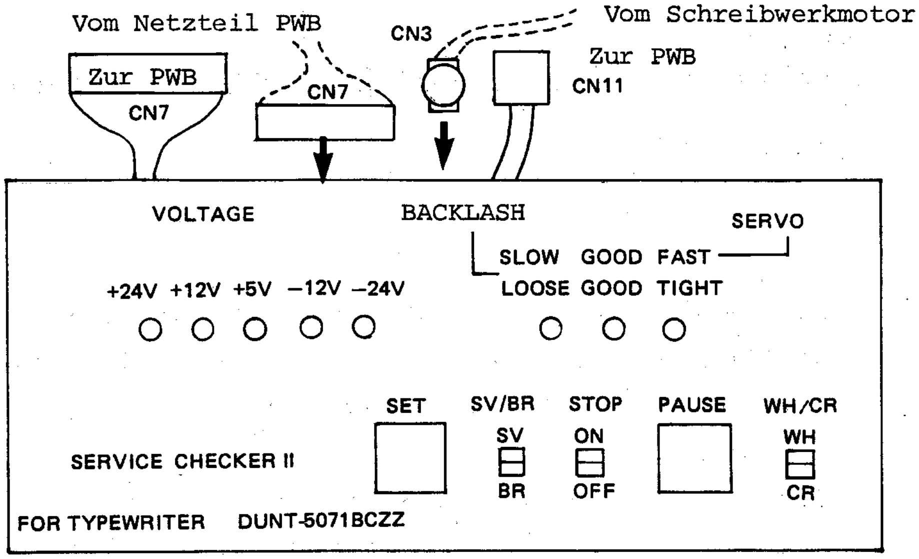
  1) Prüfgerät I mit CN9 auf der Hauptplatine (PWB) verbinden.

  2) CN11 des Prüfgeräts II an CN11 der PWB anschließen.

  3) Die Typenradgeschwindigkeit nach Anweisung 8.1. einstellen.

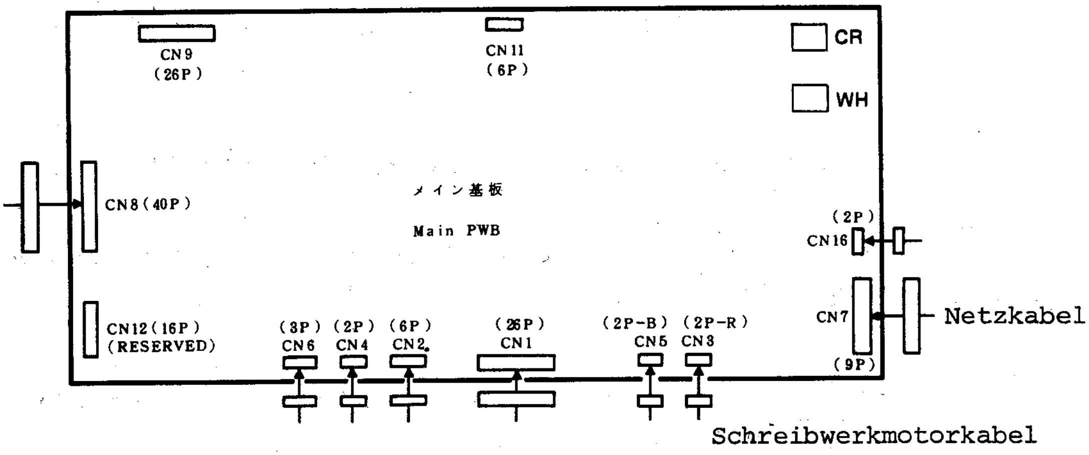
  4) Die Schreibwerkgeschwindigkeit nach Anweisung 8.2. einstellen.

Fig. S


Vom Netzteil PWB
Zur PWB
CN7
CN7
CN3
Vom Schreibwerkmotor
Zur PWB
CN11
VOLTAGE
+24V +12V +5V −12V −24V
BACKLASH
SERVO
SLOW GOOD FAST
LOOSE GOOD TIGHT
SET
SV/BR
SV
BR
STOP
ON
OFF
PAUSE
WH/CR
WH
CR
SERVICE CHECKER II
FOR TYPEWRITER DUNT-5071BCZZ

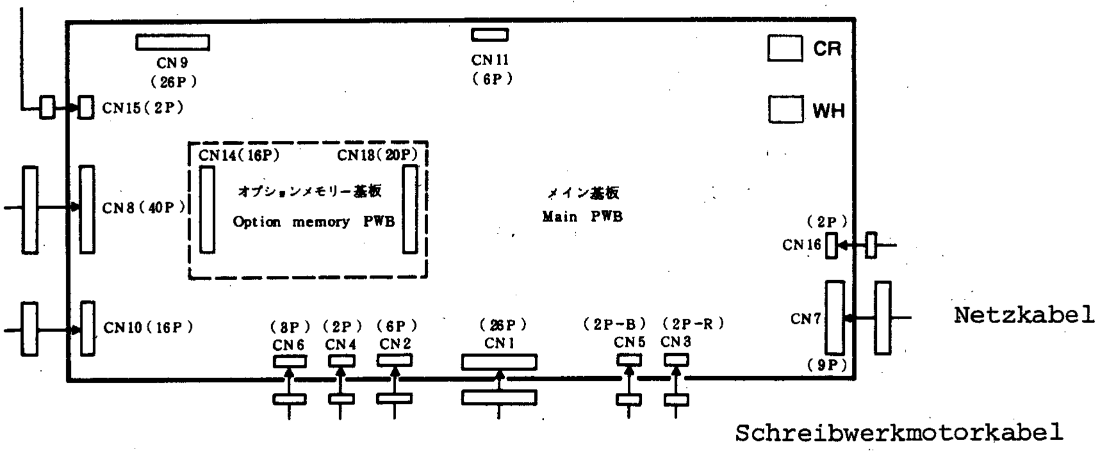
ZX-400 MAIN PWB

Fig. T


CN9 (26P)
CN11 (6P)
CR
WH
CN8 (40P)
メイン基板
Main PWB
(2P) CN16
CN12 (16P) (RESERVED)
(3P) CN6
(2P) CN4
(6P) CN2
(26P) CN1
(2P-B) CN5
(2P-R) CN3
CN7 (9P)
Netzkabel
Schreibwerkmotorkabel

ZX-500 MAIN PWB

Fig. U


CN9 (26P)
CN11 (6P)
CR
WH
CN15 (2P)
CN14 (16P)
CN13 (20P)
CN8 (40P)
オプションメモリー基板
Option memory PWB
メイン基板
Main PWB
(2P) CN16
CN10 (16P)
(3P) CN6
(2P) CN4
(6P) CN2
(26P) CN1
(2P-B) CN5
(2P-R) CN3
CN7 (9P)
Netzkabel
Schreibwerkmotorkabel

8.1. EINSTELLUNG DER TYPENRADGESCHWINDIGKEIT

a) Schalter WH/CR auf WH, den Schalter SV/BR auf SV und den STOP-Schalter auf OFF stellen.

b) Den Netzschalter POWER der Schreibmaschine auf ON stellen.

c) Das Typenrad dreht sich jetzt kontinuierlich und die Drehzahl kann an den drei Leuchtdioden des Prüfgeräts abgelesen werden.

d) Falls die GOOD-Anzeige aufleuchtet, stimmt die Drehzahl genau.

e) Leuchtet die SLOW-Anzeige, ist die Drehzahl zu gering. In diesem Fall das Trimmpotentiometer (WH) auf der Hauptplatine so weit im Uhrzeigersinn drehen, bis die normale Drehzahl erreicht ist (GOOD).

f) Wenn die FAST-Anzeige aufleuchtet, ist die Drehzahl zu hoch. In diesem Fall das Trimmpotentiometer (WH) auf der Hauptleiterplatte so lange entgegengesetzt dem Uhrzeigersinn drehen, bis die normale Drehzahl erreicht ist. (GOOD-Anzeige)

g) PAUSE-Taste drücken. Das Typenrad dreht sich jetzt in entgegengesetzter Richtung. Auch nun wieder die Drehzahl wie oben beschrieben so einstellen, bis auf dem Prüfgerät eine GOOD-Anzeige erscheint.

h) Zum Anhalten de Typenrades den STOP-Schalter auf ON stellen. Wird der Schalter wieder in Stellung OFF gebracht, läuft der Motor mit entgegengesetzter Drehrichtung weiter.

i) Den Netzschalter (POWER) der Schreibmaschine auf OFF stellen.

8.2. EINSTELLUNG DER SCHREIBWERKGESCHWINDIGKEIT

a) Den Schalter WH/CR auf CR, den Schalter SV/GR auf SV und den STOP-Schalter auf OFF stellen.

b) Den Netzschalter (POWER) der Schreibmaschine auf ON stellen.

c) Das Schreibwerk bewegt sich jetzt fortlaufend hin und her. Die Laufgeschwindigkeit kann an den drei Leuchtdioden des Prüfgerätes abgelesen werden.

d) Wenn die GOOD-Anzeige aufleuchtet, ist die Geschwindigkeit des Schreibwerks in Ordnung.

e) Wenn die SLOW-Anzeige aufleuchtet, läuft das Schreibwerk zu langsam. In diesem Fall das Trimmpotentiometer (CR) auf der Hauptplatine so weit im Uhrzeigersinn drehen, bis die normale Geschwindigkeit erreicht ist (GOOD-Anzeige).

f) Wenn die FAST-Anzeige aufleuchtet, läuft das Schreibwerk zu schnell. In diesem Fall das Trimmpotentiometer (CR) auf der Hauptplatine so weit entgegengesetzt dem Uhrzeigersinn drehen, bis die normale Laufgeschwindigkeit erreicht ist (GOOD-Anzeige).

g) Zum Anhalten des Schreibwerks den STOP-Schalter in Stellung ON bringen. Wird der Schalter auf OFF gestellt, läuft das Schreibwerk weiter.

h) Den Netzschalter (POWER) der Schreibmaschine auf OFF stellen.

i) Die Prüfgeräte I und II von der Hauptplatine lösen. Nach der Einstellung befindet sich das Typenrad nicht an der Ausgangsstellung.

Hierzu Netzschalter (POWER) der Schreibmaschine nochmals auf ON einstellen und das Typenrad in die Grundstellung bringen (Initialisieren), bevor die Schreibmaschine wieder ausgeschaltet wird.

9. PRÜFUNG DES NETZTEILS

Die Vorbereitungen dazu wie folgt durchführen:

a) Das Gehäuse-Oberteil abnehmen und Tastatur aufrecht stellen, wie im Service-Handbuch 1 auf Seite 1-1 und Seite 1-5 berschieben. Siehe Fig. S, T und U.

b) Steckverbindung CN7 auf der Hauptplatine lösen und mit dem Prüfgerät II verbinden.

c) CN7 des Prüfgeräts II mit CN7 der Hauptplatine verbinden.

9.1. KONTROLLE DER BETRIEBSSPANNUNGEN

a) Den Netzschalter (POWER) der Schreibmaschine auf ON stellen.

b) Darauf achten, daß die fünf LEDs für die Spannungsanzeige mit gleicher Helligkeit leuchten. Wenn eine der Leuchtdioden dunkel bleibt oder nur sehr schwach leuchtet, liegt ein Fehler in der zugehörigen Stromversorgungsleitung vor.

c) Ist dies der Fall, die Schreibmaschine ausschalten und das Stromversorungskabel des Prüfgeräts von der Hauptplatine lösen.

d) Die Schreibmaschine wieder einschalten.

e) Wird der gleiche Fehler auch jetzt wieder festgestellt, ist wahrscheinlich das Netzteil defekt. Verschwindet der Fehler jedoch nach Trennen des Kabels, ist die Hauptplatine vermutlich defekt.

10. ÜBERPRÜFEN DES ZAHNRADEINGRIFFS BEIM SCHREIBWERKMOTOR

Im Rahmen dieser Kontrolle wird der Eingriff des Zahnrads (A) mit dem Ritzel (B) des Schreibwerkmotors überprüft und ggf. neu eingestellt.

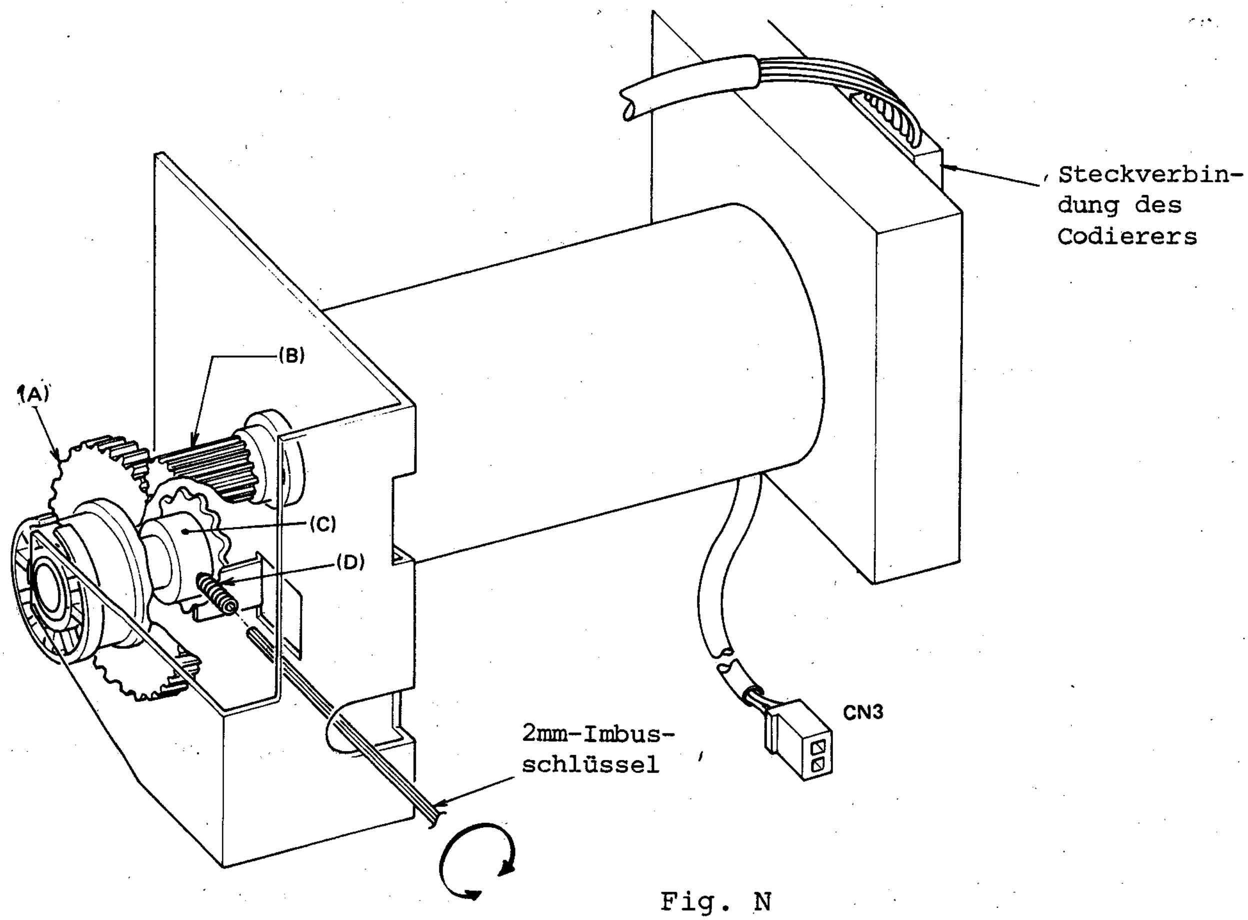

Steckverbindung des Codierers
(B)
(A)
(C)
(D)
CN3
2mm-Imbusschlüssel

Fig. N

10.1. VORBEREITUNG ZUR EINSTELLUNG DES ZAHNFLANKENSPIELS

a) Das Gehäuse-Oberteil, wie auf Seite 1-1 des Service-Handbuches beschrieben, abnehmen.

b) Tastatur, wie auf Seite 1-5 des Service-Handbuches Nr. 1 beschrieben, ausbauen.

c) Den Hauptrahmen des Schreibwerks, wie auf Seite 1-5 des Service-Handbuchs 1 beschrieben, aus dem Gehäuse-Unterteil ausbauen.

d) Den Schreibwerkmotor, wie auf Seite 1-13 des Service-Handbuchs 1 beschrieben, gemäß Fig. S, T und U ausbauen.

e) Das Stromversorgungskabel am Steckverbinder CN-7 und das Kabel des Schreibwerkmotors CN-3 von der Hauptplatine lösen.

f) CN-3 und CN-7 mit dem Prüfgerät II verbinden.

g) Codierer-Stecker, wie in Fig. N gezeigt, lösen.

10.2. EINSTELLUNG DES ZAHNFLANKENSPIELS

a) Schalter SV/BR auf BR stellen.

b) Stellschraube an der Motoreinheit mit einem 2mm-Imbusschlüssel lösen und Ring dann von der Antriebsscheibe aus gesehen in UZ drehen, bis der Eingriff von Zahnrad (A) und Ritzel (B) so klein wie möglich wird.

c) Den Netzschalter (POWER) der Schreibmaschine auf ON stellen.

d) Sobald sich die Motordrehung stabilisiert hat, Taste SET drücken und darauf achten, daß die LOOSE-Anzeige am Prüfgerät aufleuchtet.

e) Stellschraube langsam entgegengesetzt dem Uhrzeigersinn drehen, um den Eingriff von (A) und (B) zu erhöhen.

f) Bei exaktem Zahnflankenspiel leuchtet die GOOD-Anzeige auf.

g) Stellschraube noch weiter entgegengesetzt dem Uhrzeiger drehen, bis die HIGH-Anzeige aufleuchtet.

h) Stellschraube jetzt wieder so weit im Uhrzeigersinn drehen, bis eine konstante GOOD-Anzeige erreicht ist. Schraube an diesem Punkt fest anziehen.

i) Nach Anziehen der Schraube prüfen, ob die GOOD-Anzeige weiter leuchtet.

j) Netzschalter (POWER) der Schreibmaschine auf OFF stellen.

k) Motor- und Stromversorgungskabel vom Prüfgerät lösen. Dann das Stromversorgungskabel wieder an die Hauptplatine anschließen.

l) Zum Abschluß nochmals die in Fig. N gezeigte Stellschraube mit dem Imbusschlüssel fest anziehen.

m) Schreibwerkmotor, wie im Service-Handbuch 1 auf den Seiten 1-12 und 1-13 beschrieben, im Hauptrahmen der Schreibmaschine montieren.

11. EINSTELLUNG DER DRAHTZUGSPANNUNG

Diese Einstellung erst nach beendeter Einstellung des Zahnradspiels durchführen. Siehe Fig. P.

a) Darauf achten, daß sich das Schreibwerk genau in der Mitte des Zugbandwegs befindet.

b) Federwaage in der Mitte der unteren Bandführung am Drahtseil einhängen.

c) Bei einer Federwaagenanzeige von 300 g prüfen, ob das Zugband 4 - 5 mm an (Punkt E) durchhängt.

d) Falls der Durchhang von diesem vorgeschriebenen Wert abweicht, die Mutter (12) lösen und Teil (F) mit einem Schraubenzieher auf die vorgeschriebene Spannung des Zugbandes einstellen.

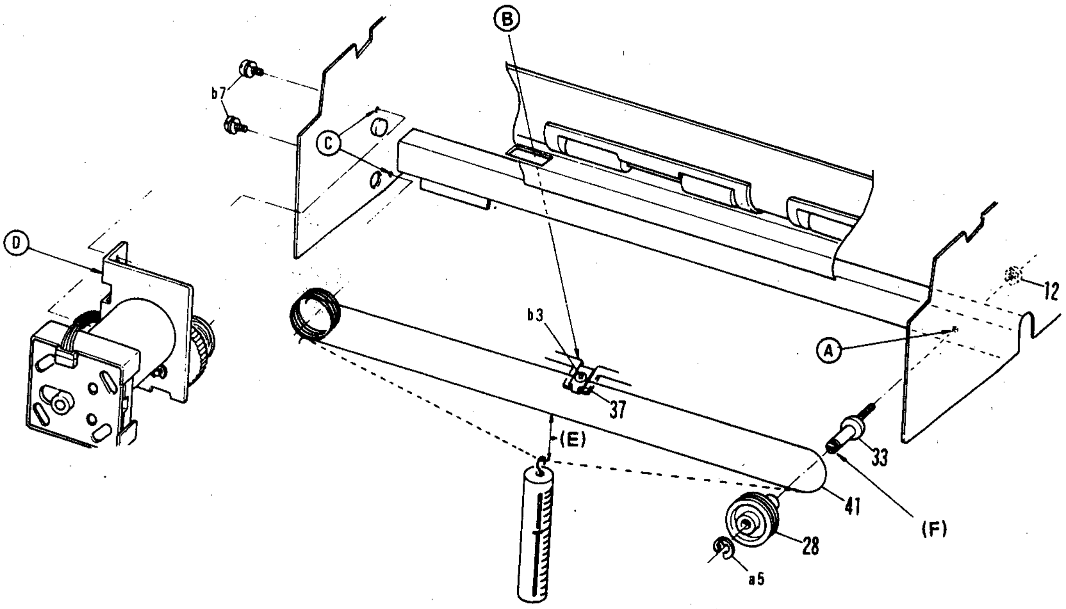


Fig. P

12. EINSTELLUNG DES PAPIERVORSCHUBMECHANISMUS

Nach Einbau eines neuen Motors prüfen, ob der Abstand zwischen der Papiervorschubwelle bis zum äußersten Zahn des Motorritzels 26,0 + 0,15 - 0,0 mm beträgt. Abstand wie gezeigt von der Welle bis zur Zahnspitze messen.

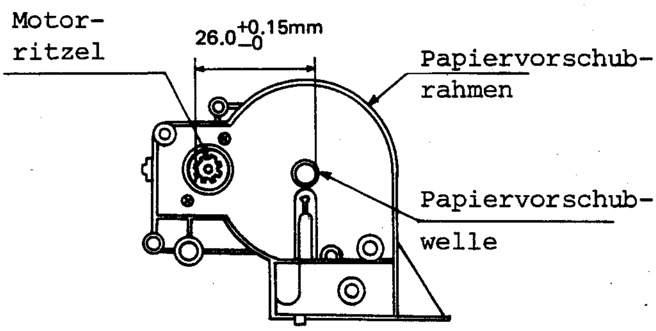

Motor-
ritzel
$26.0^{+0.15}_{-0}$mm
Papiervorschub-
rahmen
Papiervorschub-
welle

Fig. Q

13. EINSTELLUNG DES EINGRIFFS ZWISCHEN SPERRKLINKE UND SPERRAD

Siehe Fig. R-1

Falls die Sperrklinke nicht ordnungsgemäß in das Sperrad eingreift, wird dadurch der Papiervorschub beeinträchtigt. Außerdem lassen sich Fehler auf der betreffenden Seite nicht korrigieren, da der Korrekturspeicher das Typenrad nicht an die richtige Stelle bringen kann, wenn der Papiervorschub nicht synchron mitläuft.

a) Sperrad so weit drehen, bis die Sperrklinke ihre unterste Stellung erreicht hat.

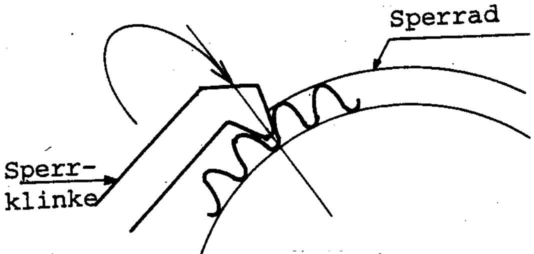

Sperrad
Sperr-
klinke

Fig. R-1

b) Falls die Sperrklinke dabei nicht ordnungsgemäß einrastet, die beiden in Fig. R-2 gezeigten Schrauben lösen, mit denen die Papiervorschubeinheit auf der linken Seite des Schreibwerkrahmens befestigt ist.

c) Einen Schraubenzieher in den Einstellschlitz einführen und so drehen, daß die Sperrklinke genau einrastet.

d) Nach erfolgter Einstellung die beiden Schrauben wieder fest anziehen.

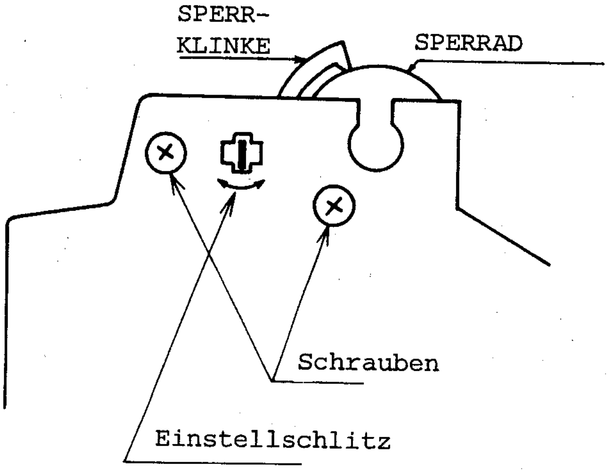

SPERR-
KLINKE
SPERRAD
Schrauben
Einstellschlitz

Fig. R-2

ANLEITUNG ZUR BESTELLUNG VON ERSATZTEILEN FÜR TASTATUR/ HAUPTPLATINE/VERSCHLEISSTEILE

1. TASTATUR UND HAUPTPLATINE

1.1. TASTATUR-BAUGRUPPE

Die vier nachstehend beschriebenen Tastenfelder werden ohne Tastenköpfe geliefert. Falls einzelnen Tastenköpfe erforderlich sind, müssen diese nach Sprachen getrennt gemäß Service-Manual Nr. 3 für die elektronischen Schreibmaschinen ZX-400 und ZX-500 (Tastenfeldersatzteilliste) bestellt werden.

Seite	Nr.	Teile-Code	Modell
4-10	B	00PZX400KBD47	ZX-400
4-10	B	00PZX400KBD48	ZX-400
4-12	C	00PZX500KBD47	ZX-500
4-12	C	00PZX500KBD48	ZX-500

1.2. HAUPTPLATINE (PWB)

Die als Ersatzteil gelieferte Hauptleiterplatine enthält kein ROM für das Tastenfeld (ROM 2 für ZX-400 bzw. ROM 6 für ZX-500). Zur Vervollständigung der Baugruppe ist es daher erforderlich, die Hauptplatine und das zugehörige ROM für das Tastenfeld separat zu bestellen. Die Teile--Codes für die ROMs sind auf den aus der nachstehenden Tabelle ersichtlichen Seiten des Service-Handbuchs 2 für elektronische Schreibmaschinenen unter Teil IV zu finden (ZX-400).

Seite	Nr.	Teil-Code	Beschreibung	Modell
4-2 (4-4)	112 (109)	VHIM2732A06-1	ROM 4, Typenrad-Nr. 3	ZX-400/500
		VHIM2732A07-1	ROM 4, Typenrad-Nr. 4	ZX-400/500
		VHIM2732A08-1	ROM 4, Typenrad-Nr. 5	ZX-400/500
		VHIM2732A09-1	ROM 4, Typenrad-Nr. 6	ZX-400/500

(   ) für ZX-500

(Bestellbeispiel)

Falls eine vollständige Hauptplatine für die US-Ausführung des Modells ZX-500 benötigt wird, sind die nachstehenden Positionen 1 und 2 für den Zusammenbau durch den Besteller in Auftrag zu geben.

Nr.	Beschreibung	Teile-Code	Erläuterungen
1	Main PWB	DUNKTK5814BCZZ	Main PWB w/o ROM 4
2	Key table ROM (ROM 4)	VHIM2732A08-1	Printwheel No. 005 (Wheel No. 5)

2. Verschleißteile

Die Teilenummer für Farbbänder, Korrekturbänder, Typenräder usw. sind in diesem Handbuch nicht enthalten, da diese Artikel durch die Händler/Verkaufabteilungen vertrieben werden.

IV. ERSATZTEILLISTE

INHALTSVERZEICHNIS

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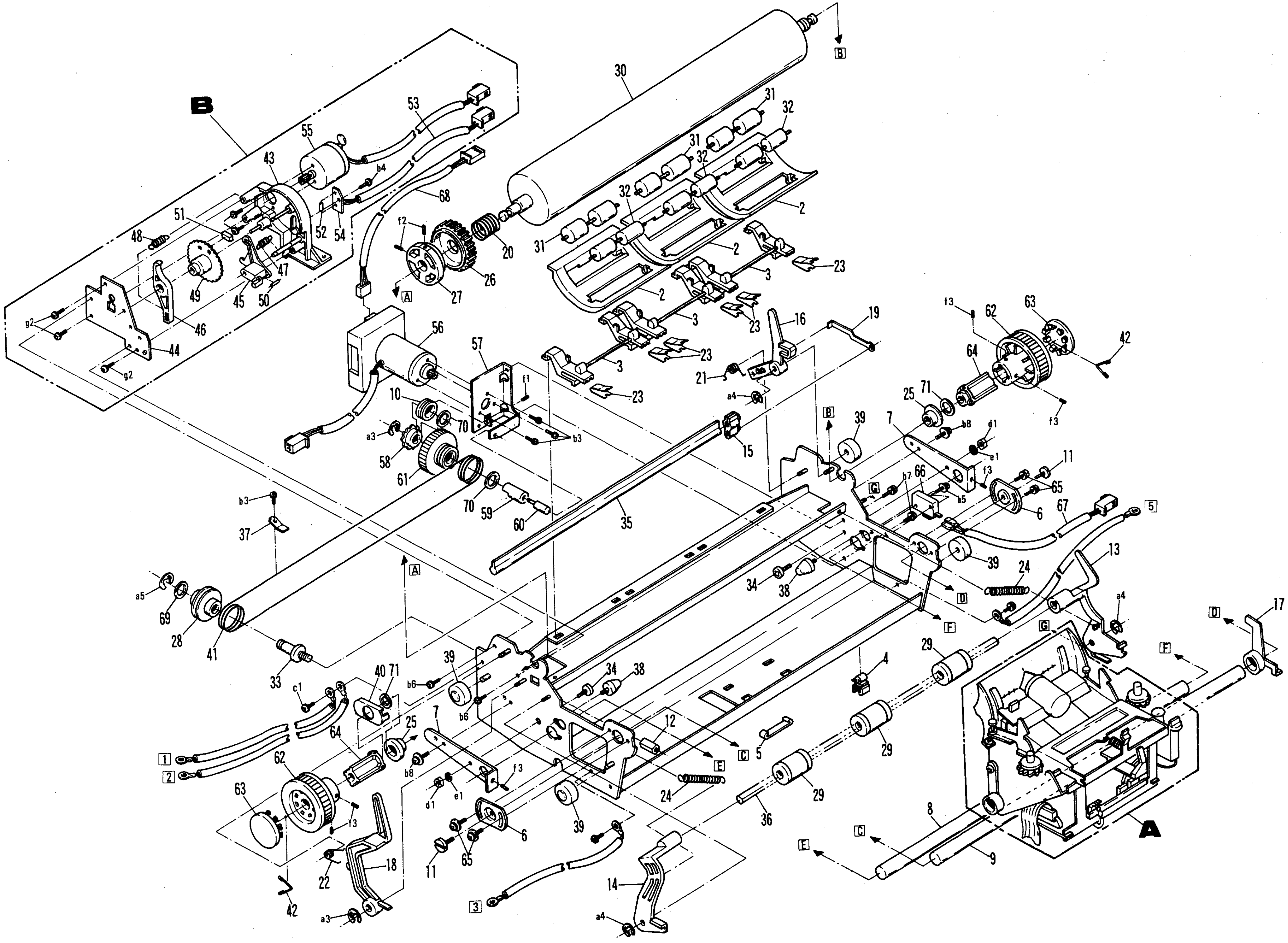
21. BODENPLATTE DES SCHREIBWERKS .... 4 - 3
22. SCHRAUBEN, UNTERLEGSCHEIBEN USW. .... 4 - 4
23. GEHÄUSEUNTERTEIL .... 4 - 6
24. GEHÄUSEOBERTEIL .... 4 - 8
25. TASTATUR (ZX-400) .... 4 - 10
26. TASTATUR (ZX-500) .... 4 - 12
27. VERPACKUNGSMATERIAL UND ZUBEHÖR (ZX-400) .... 4 - 14
28. VERPACKUNGSMATERIAL UND ZUBEHÖR (ZX-500) .... 4 - 16

20 HAUPTRAHMEN DES SCHREIBWERKS

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
A	CDAiH5010BC01	UA	CA	N	E	キヤレツジベースクミヒン	Carriage base unit
B	CMOTN5011BC01	GU	BD	N	E	フイードモータークミヒン	Paperfeed motor unit
1	LBNDJ0020FCZZ	DB	AA		C	スナップバンド	Wire fixing band
2	LHLDR5010BCZZ	DJ	AE	N	C	ローラーホルダーA	Roller holder A
3	LHLDR5011BCZZ	DH	AD	N	C	ローラーホルダーB	Roller holder B
4	LHLDW2047SCZZ	DB	AA		C	WS−1NS	Holder
5	LHLDW5019BCZZ			N	C	フラットケーブルクリップ	Clip,Flat cable
6	LPLTM5019BCZZ	DE	AC	N	C	エキセン プレート	Plate,eccentric
7	LPLTM5020BCZZ	DJ	AE	N	C	チヨウセイ プレート	Plate,adjustment
8	LRALM5010BCZZ	FL	AV	N	C	スライドシヤフト M	Slide shaft M
9	LRALM5011BCZZ	FK	AU	N	C	スライドシヤフト E	Slide shaft E
10	PRNGP5012BCZZ	DD	AC	N	C	チョウセイノブリング	Ring,adjusting knob
11	LX−BZ5010BCZZ	DE	AC	N	C	ビス	Screw
12	LX−BZ5011BCZZ	DG	AD	N	C	ビス	Screw
13	MLEVP5010BCZZ	DH	AD	N	C	ベールレバーR	Lever R,paper bail
14	MLEVP5011BCZZ	DG	AD	N	C	ベールレバーL	Lever L,paper bail
15	MLEVP5014BCZZ	DC	AB	N	C	トルクバーエンド	Torque bar end
16	MLEVP5015BCZZ	DE	AC	N	C	リリースレバー	Lever, paper release
17	MLEVP5016BCZZ	DD	AC	N	C	チヨウセイレバー	Lever,adjustment
18	MLEVP5018BCZZ	DE	AC	N	C	フリーレバー	Lever,paper free
19	MLNKM5010BCZZ	DD	AC	N	C	リリース リンク	Release link
20	MSPRC5034BCZZ	DB	AB	N	C	クラッチ スプリング	Spring,clutch
21	MSPRD5038BCZZ	DB	AB	N	C	キツク バネ R	Spring,R
22	MSPRD5039BCZZ	DB	AB	N	C	キツク バネ F	Spring,F
23	MSPRP5037BCZZ	DA	AA	N	C	Fローラ スプリング	Spring,F roller
24	MSPRT5035BCZZ	DB	AB	N	C	ベールレバーSP	Spring,bail lever
25	NBRGF5026BCZZ	DG	AD	N	C	プラテンジクウケ	Bearing platen
26	NGERZ5050BCZZ	DE	AC	N	C	ラチエツトホイール	Gear,ratchet wheel
27	NGERZ5051BCZZ	DF	AD	N	C	ノブクラツチ	Gear,knob clutch
28	CPLYB5021BC01	EM	AP	N	C	アイドルプーリ	Pulley,idle
29	NROLP5021BCZZ	DN	AF	N	C	ベールローラー	Roller,paper bail
30	NROLR5020BCZZ	GZ	BE	N	C	プラテン	Platen
31	NROLR5023BCZZ	DZ	AK	N	C	フイードローラーA	Roller A,paper feed
32	NROLR5024BCZZ	DX	AK	N	C	フイードローラーB	Roller B,paper feed
33	NSFTA5041BCZZ	DT	AG	N	C	アイドループーリシン	Shaft,idller pulley
34	PAJS−5010BCZZ	DN	AF	N	C	アジヤストネジ	Screw
35	PBARM5010BCZZ	EX	AR	N	C	トルク バー	Torque bar
36	PBARM5011BCZZ	EW	AR	N	C	ペーパー バー	Paper bar
37	PCLi−5010BCZZ	DD	AC	N	C	ワイヤークリツパー	Wire clipper
38	PDMPZ5010BCZZ	DB	AB	N	C	ストツパー	Stopper
39	PGUMM5011BCZZ	DC	AB	N	C	ボウシン ゴム	Rubber
40	PRNGP5010BCZZ	DE	AC	N	C	クラツチリング	Clutch ring
41	PWiR−5010BCZZ	EA	AK	N	C	ワイヤーロープ	Wire rope
42	MSPRK5060BCZZ	DC	AB	N	C	ノブスプリング	Spring,platen knob
43	LFRM−5010BCZZ	DY	AK	N	C	フイーダーフレーム	Housing,paper feed motor
44	LPLTM5021BCZZ	DH	AE	N	C	フイダープレート	Plate,paper feed motor
45	MLEVP5012BCZZ	DE	AC	N	C	ラチエツトA	Ratchet A
46	MLEVP5013BCZZ	DF	AD	N	C	ラチエツトB	Ratchet B
47	MSPRT5048BCZZ	DB	AB	N	C	デイテントスプリング	Spring,detent
48	MSPRT5049BCZZ	DB	AB	N	C	ラチェットスプリング	Spring,ratchet
49	NGERH5055BCZZ	DE	AC	N	C	PFギヤー 1/6	Gear,paper feed
50	NROLM5025BCZZ	DD	AC	N	C	デイテントローラー	Roller,detent
51	PMAGE5010BCZZ	DF	AD	N	C	マグネツト	Magnet
52	QCNTF5010BCZZ	DL	AE	N	C	リードセツテン	Contact (switch)
53	QCNW−5078BCZZ	DN	AF	N	C	2P.PFリードSW	Cable,2P
54	QPWBE5011BCZZ	DB	AB	N	C	SW キバン	Switch PWB w/o part
55	RMOTN5011BCZZ	FS	AW	N	B	ペーパーフイードモータ	Motor,paper feed
56	CMOTZ5012BC01	MK	BQ	N	E	キャレッジモータクミヒン	Carriage motor ass'y
57	LFRM−5012BCZZ	DV	AH	N	C	モーターフレーム	Frame,carriage motor
58	JKNBZ5010BCZZ	DC	AB	N	C	チヨウセイノブ	Adjustment knob
59	NSFTA5042BCZZ	DP	AF	N	C	ドライブプーリーシャフトE	ShaftE,drive pulley
60	NSFTA5043BCZZ	DC	AB	N	C	ドライブプーリーシャフトF	Shaft F,drive pulley
61	CPLYM5020BC01	ES	AQ	N	C	ドライブプーリ	Drive pulley
62	JKNBZ5011BCZZ	DK	AE	N	C	ノブ	Platen knob
63	PCAPZ5011BCZZ	DD	AC	N	C	ノブキヤツプ	Cap,platen knob
64	LHLDZ5015BCZZ	DN	AF	N	C	ノブスリーブ	Knob sleeve
66	QSW−M5013BCZZ	EC	AL	N	B	マイクロスイッチ	Micro switch
67	QCNW−5077BCZZ	DN	AF	N	C	3PLF−SWヨウ	Cable,auto−insert switch
68	QCNW−5076BCZZ	EP	AP	N	C	6PCRエンコーダー	Cable,carriage encoder
69	PSPAP5018BCZZ			N	C	スペーサー	Spacer
70	PSPAP5019BCZZ			N	C	スペーサー	Spacer
71	PSPAP5020BCZZ			N	C	スペーサー	Spacer

20 HAUPTRAHMEN DES SCHREIBWERKS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g2
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f2
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f1
b3
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a3
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71
25
f3
39
7
b8
d1
e1
66
b7
b5
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18
22
28
69
a5
41
33
37
c1
40
b6
1
2
3
C
D
E
F
G

21 プリンタ キャリッジ ベース部 (PRINTER CARRIAGE BASE)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
A	CCASZ5010BC01	HV	BK	N	E	リボンマキトリクミヒン	Ribbon feed motor ass'y
1	LDAiH5010BCZZ	ET	AQ	N	C	キャレッジベース	Carriage base
2	LHLDZ5017BCZZ	DN	AF	N	C	キャレキバンANGA	Holder A,carriage PWB
3	LHLDZ5018BCZZ	DE	AC	N	C	キヤレキバンANGB	Holder B,carriage PWB
4	LSTYM5010BCZZ	DF	AD	N	C	シテンバン	Plate,support
5	LSTYM5012BCZZ	DJ	AE	N	C	ペーパオサエトリツ	Plate,paper pressure
6	LX—BZ5012BCZZ	DF	AD	N	C	ビス	Screw
7	MLEVF5026BCZZ	DF	AD	N	C	ロツクレバー	Lock lever
8	MSPRP5050BCZZ	DN	AF	N	C	カセツトオサエ	Spring,cassette pressure
9	MSPRT5051BCZZ	DB	AB	N	C	ロツクレバーSPR	Spring,lock lever
10	MSPRT5054BCZZ	DB	AB	N	C	ホイルーMトリツケSP	Spring,wheel motor
11	NBRGF5020BCZZ	DW	AH	N	C	スライドメタル	Bearing,slide metal
12	NBRGZ5021BCZZ	DV	AH	N	C	キヤリツジジクウケ	Bearing,carriage shaft
13	PGiDM5011BCZZ	DE	AC	N	C	ホイールカートリツシR	Guide R,wheel cartridge
14	PGiDM5012BCZZ	DE	AC	N	C	ホイールカートリツシL	Guide L,wheel cartridge
15	PGiDM5014BCZZ	DU	AG	N	C	ペーパオサエイタ	Guide,paper pressure
16	PSPAZ5016BCZZ	DA	AA	N	C	ヒラワツシヤ	Spacer
17	LBSHZ5010BCZZ	DC	AB	N	C	コテイブツシユ	Bushing
18	LSTPF5012BCZZ	DC	AC	N	C	ツメ トメイタ	Stopper
19	LSTPF5013BCZZ	DF	AD	N	C	10/12ギヤクトメ	Stopper
20	LSTPF5015BCZZ	DF	AD	N	C	PSヨウギヤクトメ	Stopper
21	MCAMP5020BCZZ	DH	AE	N	C	リボンシフトカム	Cam follower gear
22	MCAMP5021BCZZ	DD	AC	N	C	リボンオクリキリカエ	Cam,ribbon feed rate change
23	MLEVF5023BCZZ	DD	AC	N	C	リボンマキトリイタ	Lever,ribbon feed
24	MLEVF5027BCZZ	DF	AD	N	C	10/12カイジヨ	Lever,10/12 release
25	MLEVF5028BCZZ	DF	AD	N	C	PSカイジヨレバー	Lever,PS release
26	MSPRC5044BCZZ	DA	AA	N	C	リボンマキトリアツシ	Spring,ribbon feed
27	MSPRD5056BCZZ	DA	AA	N	C	ツメヨウ スプリング	Spring,pawl
28	MSPRP5053BCZZ	DB	AB	N	C	リボンデイテントスプリング	Spring,ribbon detent
29	MSPRP5055BCZZ	DE	AC	N	C	ギヤクテンスプリング	Spring,reverse
30	MSPRT5045BCZZ	DB	AB	N	C	リボンマキトリーSP	Spring,ribbon feed
31	NGERZ5053BCZZ	DC	AB	N	C	マキトリツメグルマ	Gear
32	NSFTP5040BCZZ	DD	AC	N	C	リボンマキトリジク	Shaft,ribbon feed
33	PCASZ5010BCZZ	EA	AL	N	C	カムホルダーケース	Case,cam holder
34	PSPAP5011BCZZ	DA	AA	N	C	ツメ スペーサー	Spacer
35	PSPAP5012BCZZ	DA	AA	N	C	ギヤクテントメ A	Spacer
36	PSPAP5014BCZZ	DB	AB	N	C	ツメ スペーサーB	Pawl spacer B
37	PTME—5010BCZZ	DY	AK	N	C	テープマキトリツメ	Pawl,ribbon feed
38	PTME—5011BCZZ	DF	AD	N	C	リボン10/12Z/	Pawl,10/12
39	PTME—5013BCZZ	DF	AD	N	C	リボンPSヨウ ツメ	Pawl,PS
40	QBRSZ5010BCZZ	EY	AR	N	C	ブラシセツテン	Brush contact
41	QPWBE5015BCZZ	ED	AM	N	C	スリツプリング	Slip ring
42	CMOTN5013BC01	FV	AX	N	B	リボンフィードモータクミヒン	Motor,ribbon feed
43	PCOVP5019BCZZ	DD	AC	N	C	ツメカバー	Cover,pawl
44	LDAiH5011BCZZ	EZ	AR	N	C	カートリツジホルダ	Holder,ribbon cassette
45	LFiX—5010BCZZ	DL	AE	N	C	カートリツジオサエ	Plate,cassette pressure
46	LHLDZ5012BCZZ	DD	AC	N	C	テープリールダイ	Gear,correction tape
47	LPLTM5018BCZZ	DF	AD	N	C	カートリツジシテンイ	Plate,cartridge holder support
48	MLEVF5020BCZZ	DF	AD	N	C	リールダイクドウ	Lever,reel disk drive
49	MLEVF5021BCZZ	DR	AF	N	C	カートリツジカム	Lever
50	MLEVF5022BCZZ	DF	AD	N	C	リフトオフテープテンションレバー	Lever,lift off tension
51	MSPRT5040BCZZ	DA	AA	N	C	リールダイクドウスプリング	Spring
52	MSPRT5041BCZZ	DB	AB	N	C	カートリッジオサエイタスプリング	Spring,cartridge pressure
53	MSPRT5042BCZZ	DB	AB	N	C	コレクションテープスプリング	Spring,correction tape tension
54	MSPRT5043BCZZ	DB	AB	N	C	カートリッジフックスプリング	Spring
55	NROLP5022BCZZ	DB	AB	N	C	ガイドローラー	Guide roller
56	PCAPZ5012BCZZ	DD	AC	N	C	リボン オサエCAP	Cap,ribbon pressure
57	CMOTZ5010BC01	MJ	BQ	N	E	ホイールモータークミヒン	Wheel motor ass'y
58	DUNTM5055BCZZ	HP	BH	N	E	ハンマークミヒン	Hummer ass'y
59	JKNBZ5012BCZZ	DB	AB	N	C	ロツクレバーツマミ	Knob,lock lever
60	LPLTM5015BCZZ	DZ	AK	N	C	ホイールモータートリツケイタ	Plate,wheel motor
61	PCOVP5010BCZZ	DD	AC	N	C	ハンマーカバー	Cover,Hummer ass'y
62	——						
63	HSSN—5010BCZZ	DG	AD	N	C	シシン	Indicator
64	LANGT5041BCZZ	DP	AF	N	C	シシントリツケ ANG	Angle,indicator
65	QCNW—5071BCZZ	FV	AX	N	C	キヤレツジフラツトW	Cable
66	QCNW—5073BCZZ	DT	AG	N	C	エンコーダケーブル	Cable,wheel motor
67	QCNCM5030BCZZ	DB	AB	N	C	コネクター	Connector,2P (RED)
68	QCNCM5031BCZZ	DB	AB	N	C	コネクター	Connector,3P
69	QCNCM5032BCZZ	DB	AB	N	C	コネクター	Connector,4P
70	QCNCM5033BCZZ	DX	AH	N	C	コネクター	Connector,26P
71	QCNCM5043BCZZ	DS	AG	N	C	コネクター	Connector,2P (BLACK)
72	QPWBN5013BCZZ	EX	AR	N	C	キヤレツジPWB	Carriage PWB w/o parts
73	MSPRK5062BCZZ	DC	AB	N	C	スプリング 2	Spring

22 締結部品 (SCREW, WASHER, etc.)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
a1	XRESJ15—04000	DA	AA		C	Eリング	E type ring
a2	XRESJ20—04000	DB	AA		C	Eリング	E type ring
a3	XRESJ30—06000	DA	AA		C	Eリング	E type ring
a4	XRESJ40—06000	DB	AA		C	Eリング	E type ring
a5	XRESJ50—06000	DA	AA		C	Eリング	E type ring
b1	LX—BZ5019BCZZ	DA	AA	N	C	ビス	Screw
b2	LX—BZ5018BCZZ	DA	AA	N	C	ビス	Screw
b3	LX—BZ5022BCZZ	DA	AA	N	C	ビス	Screw
b4	LX—BZ5017BCZZ	DA	AA	N	C	ビス	Screw
b5	LX—BZ5024BCZZ	DA	AA	N	C	ビス	Screw
b6	LX—BZ5026BCZZ	DA	AA	N	C	ビス	Screw
b7	LX—BZ5025BCZZ	DA	AA	N	C	ビス	Screw
b8	LX—BZ5020BCZZ	DA	AA	N	C	ビス	Screw
b9	LX—BZ5016BCZZ	DA	AA	N	C	ビス	Screw
c1	XBPSD40P08KS0	DA	AA		C	ビス	Screw
d1	XNESD50—40000	DA	AA		C	ナット	Nut
e1	XWSSD50—13000	DA	AA		C	ワッシャ	Washer
f1	XXXSP30L10000	DB	AB		C	ビス	Screw
f2	XXXSP30L08000	DB	AB		C	ビス	Screw
f3	XXXSP40L08000	DB	AB		C	ビス	Screw
g1	XCPSC26P08000				C	タッピング ビス	Screw
g2	XCPSC30P08000	DA	AA		C	タッピング ビス	Screw
g3	XCPSC26P06000	DA	AA		C	タッピング ビス	Screw
g4	XCPSC30P06000				C	タッピング ビス	Screw
h1	LX—WZ5017BCZZ	DA	AA	N	C	ポリスライダー	Washer
h2	LX—WZ5018BCZZ	DA	AA	N	C	ポリスライダー	Washer
h3	LX—WZ5001BCZZ	DA	AA	N	C	ポリスライダー	Washer
h4	LX—WZ5004BCZZ	DA	AA	N	C	ポリスライダー	Washer

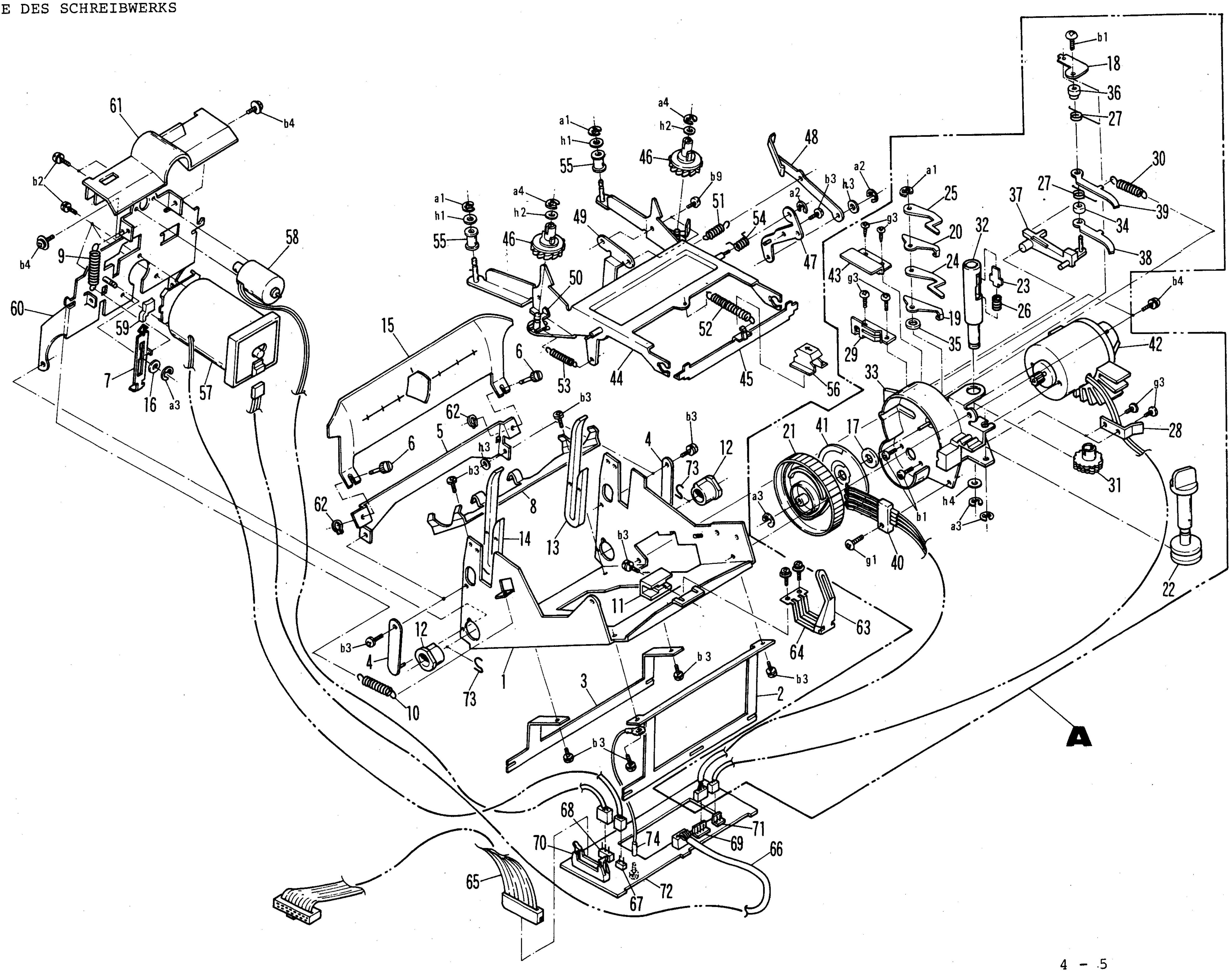
21 BODENPLATTE DES SCHREIBWERKS

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
A	CCASZ5010BC01	HV	BK	N	E	リボンマキトリクミヒン	Ribbon feed motor ass'y
1	LDAiH5010BCZZ	ET	AQ	N	C	キャレッジベース	Carriage base
2	LHLDZ5017BCZZ	DN	AF	N	C	キャレキバンANGA	Holder A,carriage PWB
3	LHLDZ5018BCZZ	DE	AC	N	C	キヤレキバンANGB	Holder B,carriage PWB
4	LSTYM5010BCZZ	DF	AD	N	C	シテンバン	Plate,support
5	LSTYM5012BCZZ	DJ	AE	N	C	ペーパオサエトリツ	Plate,paper pressure
6	LX—BZ5012BCZZ	DF	AD	N	C	ビス	Screw
7	MLEVF5026BCZZ	DF	AD	N	C	ロツクレバー	Lock lever
8	MSPRP5050BCZZ	DN	AF	N	C	カセツトオサエ	Spring,cassette pressure
9	MSPRT5051BCZZ	DB	AB	N	C	ロツクレバーSPR	Spring,lock lever
10	MSPRT5054BCZZ	DB	AB	N	C	ホイルーMトリツケSP	Spring,wheel motor
11	NBRGF5020BCZZ	DW	AH	N	C	スライドメタル	Bearing,slide metal
12	NBRGZ5021BCZZ	DV	AH	N	C	キヤリツジジクウケ	Bearing,carriage shaft
13	PGiDM5011BCZZ	DE	AC	N	C	ホイールカートリツシR	Guide R,wheel cartridge
14	PGiDM5012BCZZ	DE	AC	N	C	ホイールカートリツシL	Guide L,wheel cartridge
15	PGiDM5014BCZZ	DU	AG	N	C	ペーパオサエイタ	Guide,paper pressure
16	PSPAZ5016BCZZ	DA	AA	N	C	ヒラワツシヤ	Spacer
17	LBSHZ5010BCZZ	DC	AB	N	C	コテイブツシユ	Bushing
18	LSTPF5012BCZZ	DC	AC	N	C	ツメ トメイタ	Stopper
19	LSTPF5013BCZZ	DF	AD	N	C	10/12ギヤクトメ	Stopper
20	LSTPF5015BCZZ	DF	AD	N	C	PSヨウギヤクトメ	Stopper
21	MCAMP5020BCZZ	DH	AE	N	C	リボンシフトカム	Cam follower gear
22	MCAMP5021BCZZ	DD	AC	N	C	リボンオクリキリカエ	Cam,ribbon feed rate change
23	MLEVF5023BCZZ	DD	AC	N	C	リボンマキトリイタ	Lever,ribbon feed
24	MLEVF5027BCZZ	DF	AD	N	C	10/12カイジヨ	Lever,10/12 release
25	MLEVF5028BCZZ	DF	AD	N	C	PSカイジヨレバー	Lever,PS release
26	MSPRC5044BCZZ	DA	AA	N	C	リボンマキトリアツシ	Spring,ribbon feed
27	MSPRD5056BCZZ	DA	AA	N	C	ツメヨウ スプリング	Spring,pawl
28	MSPRP5053BCZZ	DB	AB	N	C	リボンデイテントスプリング	Spring,ribbon detent
29	MSPRP5055BCZZ	DE	AC	N	C	ギャクテンスプリング	Spring,reverse
30	MSPRT5045BCZZ	DB	AB	N	C	リボンマキトリ—SP	Spring,ribbon feed
31	NGERZ5053BCZZ	DC	AB	N	C	マキトリツメグルマ	Gear
32	NSFTP5040BCZZ	DD	AC	N	C	リボンマキトリジク	Shaft,ribbon feed
33	PCASZ5010BCZZ	EA	AL	N	C	カムホルダーケース	Case,cam holder
34	PSPAP5011BCZZ	DA	AA	N	C	ツメ スペーサー	Spacer
35	PSPAP5012BCZZ	DA	AA	N	C	ギヤクテントメ A	Spacer
36	PSPAP5014BCZZ	DB	AB	N	C	ツメ スペーサ—B	Pawl spacer B
37	PTME—5010BCZZ	DY	AK	N	C	テープマキトリツメ	Pawl,ribbon feed
38	PTME—5011BCZZ	DF	AD	N	C	リボン10/12Z/	Pawl,10/12
39	PTME—5013BCZZ	DF	AD	N	C	リボンPSヨウ ツメ	Pawl,PS
40	QBRSZ5010BCZZ	EY	AR	N	C	ブラシセツテン	Brush contact
41	QPWBE5015BCZZ	ED	AM	N	C	スリツプリング	Slip ring
42	CMOTN5013BC01	FV	AX	N	B	リボンフィードモータクミヒン	Motor,ribbon feed
43	PCOVP5019BCZZ	DD	AC	N	C	ツメカバー	Cover,pawl
44	LDAiH5011BCZZ	EZ	AR	N	C	カートリツジホルダ	Holder,ribbon cassette
45	LFiX—5010BCZZ	DL	AE	N	C	カートリツジオサエ	Plate,cassette pressure
46	LHLDZ5012BCZZ	DD	AC	N	C	テープリールダイ	Gear,correction tape
47	LPLTM5018BCZZ	DF	AD	N	C	カートリツジシテンイ	Plate,cartridge holder support
48	MLEVF5020BCZZ	DF	AD	N	C	リールダイクドウ	Lever,reel disk drive
49	MLEVF5021BCZZ	DR	AF	N	C	カートリツジカム	Lever
50	MLEVF5022BCZZ	DF	AD	N	C	リフトオフテープテンションレバー	Lever,lift off tension
51	MSPRT5040BCZZ	DA	AA	N	C	リールダイクドウスプリング	Spring
52	MSPRT5041BCZZ	DB	AB	N	C	カートリッジオサエイタスプリング	Spring,cartridge pressure
53	MSPRT5042BCZZ	DB	AB	N	C	コレクシヨンテープスプリング	Spring,correction tape tension
54	MSPRT5043BCZZ	DB	AB	N	C	カートリッジフックスプリング	Spring
55	NROLP5022BCZZ	DB	AB	N	C	ガイドローラー	Guide roller
56	PCAPZ5012BCZZ	DD	AC	N	C	リボン オサエCAP	Cap,ribbon pressure
57	CMOTZ5010BC01	MJ	BQ	N	E	ホイールモータークミヒン	Wheel motor ass'y
58	DUNTM5055BCZZ	HP	BH	N	E	ハンマークミヒン	Hummer ass'y
59	JKNBZ5012BCZZ	DB	AB	N	C	ロツクレバーツマミ	Knob,lock lever
60	LPLTM5015BCZZ	DZ	AK	N	C	ホイールモータートリツケイタ	Plate,wheel motor
61	PCOVP5010BCZZ	DD	AC	N	C	ハンマーカバー	Cover,Hummer ass'y
62	—						
63	HSSN—5010BCZZ	DG	AD	N	C	シシン	Indicator
64	LANGT5041BCZZ	DP	AF	N	C	シシントリツケ ANG	Angle,indicator
65	QCNW—5071BCZZ	FV	AX	N	C	キヤレツジフラツトW	Cable
66	QCNW—5073BCZZ	DT	AG	N	C	エンコーダケーブル	Cable,wheel motor
67	QCNCM5030BCZZ	DB	AB	N	C	コネクター	Connector,2P (RED)
68	QCNCM5031BCZZ	DB	AB	N	C	コネクター	Connector,3P
69	QCNCM5032BCZZ	DB	AB	N	C	コネクター	Connector,4P
70	QCNCM5033BCZZ	DX	AH	N	C	コネクター	Connector,26P
71	QCNCM5043BCZZ	DS	AG	N	C	コネクター	Connector,2P (BLACK)
72	QPWBN5013BCZZ	EX	AR	N	C	キヤレツジPWB	Carriage PWB w/o parts
73	MSPRK5062BCZZ	DC	AB	N	C	スプリング 2	Spring

22 SCHRAUBEN, UNTERLEGSCHEIBEN USW.

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
a1	XRESJ15−04000	DA	AA		C	Eリング	E type ring
a2	XRESJ20−04000	DB	AA		C	Eリング	E type ring
a3	XRESJ30−06000	DA	AA		C	Eリング	E type ring
a4	XRESJ40−06000	DB	AA		C	Eリング	E type ring
a5	XRESJ50−06000	DA	AA		C	Eリング	E type ring
b1	LX−BZ5019BCZZ	DA	AA	N	C	ビス	Screw
b2	LX−BZ5018BCZZ	DA	AA	N	C	ビス	Screw
b3	LX−BZ5022BCZZ	DA	AA	N	C	ビス	Screw
b4	LX−BZ5017BCZZ	DA	AA	N	C	ビス	Screw
b5	LX−BZ5024BCZZ	DA	AA	N	C	ビス	Screw
b6	LX−BZ5026BCZZ	DA	AA	N	C	ビス	Screw
b7	LX−BZ5025BCZZ	DA	AA	N	C	ビス	Screw
b8	LX−BZ5020BCZZ	DA	AA	N	C	ビス	Screw
b9	LX−BZ5016BCZZ	DA	AA	N	C	ビス	Screw
c1	XBPSD40P08KS0	DA	AA		C	ビス	Screw
d1	XNESD50−40000	DA	AA		C	ナット	Nut
e1	XWSSD50−13000	DA	AA		C	ワッシャ	Washer
f1	XXXSP30L10000	DB	AB		C	ビス	Screw
f2	XXXSP30L08000	DB	AB		C	ビス	Screw
f3	XXXSP40L08000	DB	AB		C	ビス	Screw
g1	XCPSC26P08000				C	タッピング ビス	Screw
g2	XCPSC30P08000	DA	AA		C	タッピング ビス	Screw
g3	XCPSC26P06000	DA	AA		C	タッピング ビス	Screw
g4	XCPSC30P06000				C	タッピング ビス	Screw
h1	LX−WZ5017BCZZ	DA	AA	N	C	ポリスライダー	Washer
h2	LX−WZ5018BCZZ	DA	AA	N	C	ポリスライダー	Washer
h3	LX−WZ5001BCZZ	DA	AA	N	C	ポリスライダー	Washer
h4	LX−WZ5004BCZZ	DA	AA	N	C	ポリスライダー	Washer

21 BODENPLATTE DES SCHREIBWERKS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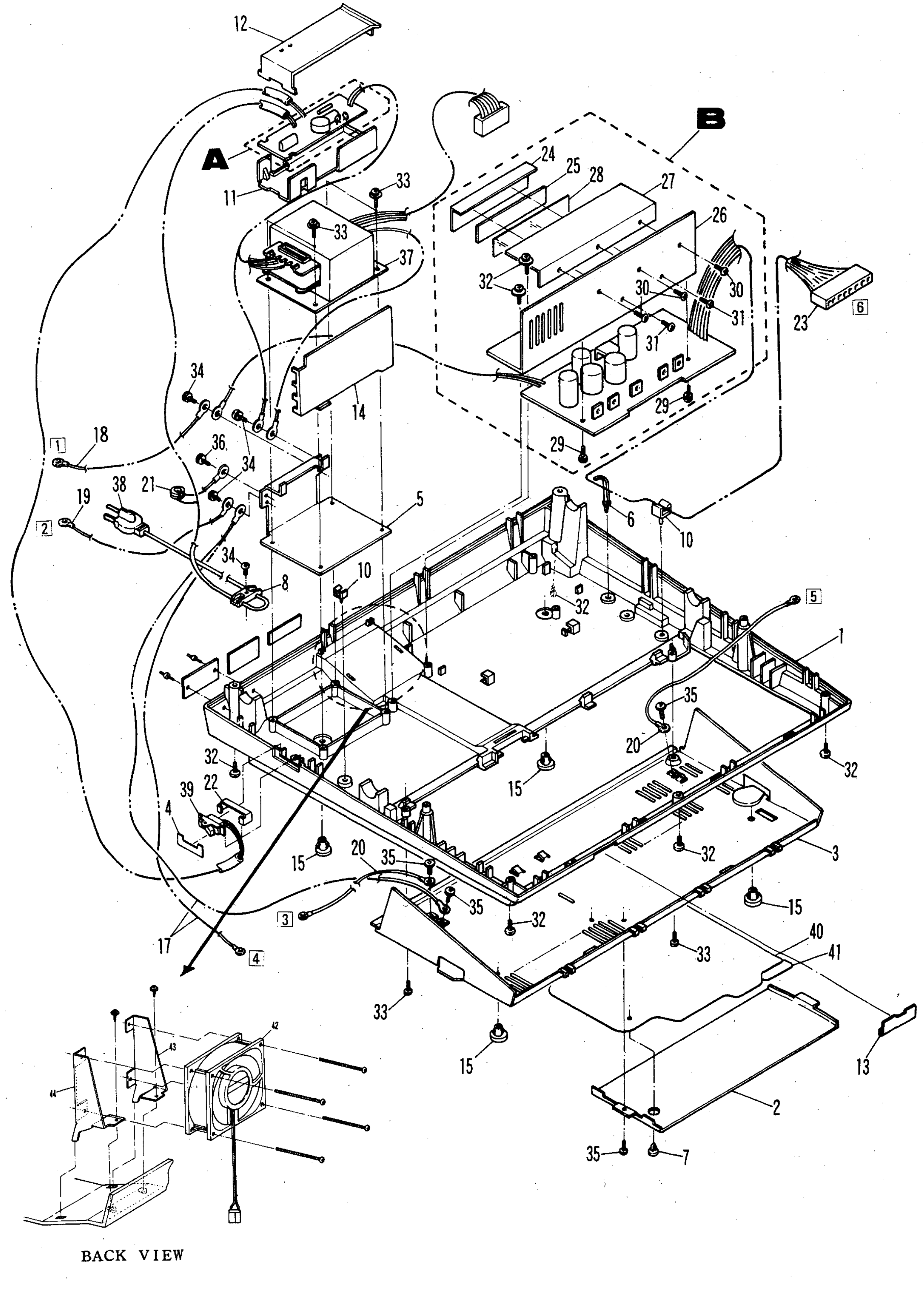
DESTINATION TABLE

CODE		MODEL	DESTINATION	CODE		MODEL	DESTINATION
A	4A	ZX-400A	U.S.A.	I	4I	ZX-400I	Italy
	5A	ZX-500A			5I	ZX-500I	
M	4M	ZX-400M	Canada	N	4N	ZX-400N	Norway
	5M	ZX-500M			5N	ZX-500N	
G	4G	ZX-400G	West Germany	NL	4NL	ZX-400NL	Holland
	5G	ZX-500G			5NL	ZX-500NL	
F	4F	ZX-400F	France	P	4P	ZX-400P	Portugal
	5F	ZX-500F			5P	ZX-500P	
SP	4SP	ZX-400SP	Spain	S	4S	ZX-400S	Finland
	5SP	ZX-500SP		FL	5FL	ZX-500FL	
U	4U	ZX-400U	UK	D	4D	ZX-400D	Denmark
	5U	ZX-500U			5D	ZX-500D	
Q	4Q	ZX-400Q	Australia, New Zeland	SG	4SG	ZX-400SG	Switzerland (German)
	5Q	AX-500Q			5SG	ZX-500SG	
EJ	4EJ	ZX-400EJ	South Africa	S	4S	ZX-400S	Sweden
	5EJ	ZX-500EJ			5S	ZX-500S	
EAH	4EAH	ZX-400EA	Hong Kong	B	4B	ZX-400B	Belgium
	5EAH	ZX-500EA			5B	ZX-500B	
EAS	4EAS	ZX-400EA	Singapore	IL	4IL	ZX-400IL	Iceland
	5EAS	ZX-500EA			5IL	ZX-500IL	
EAT	4EAT	ZX-400ET	Taiwan	SF	4SF	ZX-400SF	Switzerland (French)
	5EAT	ZX-500ET			5SF	ZX-500SF	
EAi	4EAi	ZX-400EA	Indonesia	EFA	4EFA	ZX-400EF	Algeria
	5EAi	ZX-500EA			5EFA	ZX-500EF	
J	4J	ZX-400J	Japan	ESP	4ESP	ZX-400ES	Peru
	5J	ZX-500J			5ESP	ZX-500ES	

23 GEHÄUSEUNTERTEIL

	NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
			Ja	Ex				
⚠	A	CPWBF5017BC01		BC	N	C	NF,SW−U120V	Primary PS PWB unit (120V)
⚠		CPWBF5017BC02	GQ		N	C	NF,SW−U100V	Primary PS PWB unit (100V)
⚠		CPWBF5018BC01		BD	N	C	NF,SW−U220V	Primary PS PWB unit (220V)
⚠		CPWBF5019BC01		BD	N	C	NF,SW−U240V	Primary PS PWB unit (240V)
	B	CPWBF5020BC01	TD	BW	N	E	PS0U100,120V	Secondary PS PWB unit (100V,120V)
		CPWBF5020BC02		BW	N	E	PS0U220V,240V	Secondary PS PWB unit (220V,240V)
	1	GCABB5011BCZZ	GY	BE	N	D	シタ ハウジング	Housing,lower
	2	GCASP5011BCZZ	DY	AK	N	D	トリセツ ケース	Case,reference card
	3	GFTAU5011BCZZ	FM	AV	N	D	キャビ ソコイタ	Plate,lower housing (Except Canada)
		GFTAU5015BCZZ		AY	N	C	キャビソコイタCSA	Plate,lower housing (Canada only)
	4	HPNLC5020BCZZ	DB	AB	N	D	デンゲンSWパネル	Panel,power switch
	5	LANGQ5040BCZZ	EB	AL	N	C	フィルタケーストリツケアングル	Angle,filter case
	6	LBNDJ0020FCZZ	DB	AA		C	スナップバンド	Wire fixing band
	7	LBSHZ2003HCZZ	DB	AB		C	NRP−355	Busing
	8	LHLDK5016BCZZ	DD	AC	N	C	コードロツク	Holder,AC line cord
	9	LHLDW2020SCZZ	DB	AB		C	K−103G	Holder
	10	LHLDW2047SCZZ	DB	AA		C	WS−1NS	Holder
	11	PBŌX−5010BCZZ	DP	AF	N	C	デンゲンSWケース	Box,power switch
	12	PCŌVP5013BCZZ	DH	AD	N	C	SW BOX フタ	Primary PWB box lid
	13	PCŌVP5014BCZZ	DC	AB	N	C	チエツク フタ	Lid for check connector
	14	PCŌVP5015BCZZ	DW	AH	N	C	トランス カバー	Cover for transformer
	15	PGUMM5012BCZZ	DB	AB	N	C	ゴムアシ	Rubber leg
	16	PSPAZ5015BCZZ	DA	AA	N	C	トランスカバークッション	Cussion
	17	QCNW−5080BCZZ	DH	AE	N	C	アースセン L−500	Wire for earth
	18	QCNW−5081BCZZ	DG	AD	N	C	アースセン L−250	Wire for earth
	19	QCNW−5083BCZZ	DK	AE	N	C	グレートワイヤNO1	Earth wire
	20	QCNW−5084BCZZ	DM	AE	N	C	グレートワイヤNO2	Earth wire
	21	RCŌRF2001SCZZ	EC	AN		C	ESD−R19	Ferrite core for radiation noise
	22	PCŌVP5017BCZZ	DA	AA	N	C	SW−カバー	Insulator for AC SW
	23	QCNW−5074BCZZ	EJ	AN	N	C	9Pケーブル	9 pin connector with cable
	24	LANGF2437SCZZ	DL	AE		C	TRオサエイタ	Transistor fix plate
	25	PGUMS2042SCZZ	DR	AG		C	TRオサエゴム	Transistor support rubber
	26	PRDAF5013BCZZ	HN	BG	N	C	ホウネツバン	Heat sink plate,vertical
	27	PRDAF5014BCZZ	FP	AV	N	C	ホウネツテンバン	Heat sink plate,top
	28	PZETM2002SCZZ	DL	AA		C	マイラー P2	Miller film for insulator
	29	XBPSD30P06K00	DA	AA		C	ビス	Screw
	30	XBPSD30P08K00	DA	AA		C	ビス	Screw
	31	XBPSD30P16K00	DA	AA		C	ビス	Screw
	32	XBPSD40P10KS0	DA	AA		C	ビス	Screw
	33	XBPSD40P14KS0	DA	AA		C	ビス	Screw
	34	XBPSD30P08KS0	DA	AA		C	ビス	Screw
	35	XVPSD30P06000	DA	AA		C	ビス	Screw
	36	XBPBZ40P08K00	DA	AA		C	ビス	Screw
⚠	37	RTRNP5011BCZZ		BH	N	B	デンゲントランス	Power transformer (120V)
⚠		RTRNP5012BCZZ		BL	N	B	デンゲントランス	Power transformer (220V/240V)
⚠		RTRNP5013BCZZ	HT		N	B	デンゲントランス	Power transformer (100V)
⚠	38	QACCD7413QCN1		AQ	N	B	ACコード	AC cord (Destination) [A,M]
⚠		QACCL7420QCZZ		AV	N	B	ACコード	AC cord (Destination) (Q)
⚠		QACCJ3419QCN1	EC		N	B	ACコード	AC cord (Destination) (J, EAT)
⚠		QACCV6420QCN1		AV	N	B	ACコード	AC cord (Destination) (G,F,N,NL,S,FL,D,B,IL,EFA,EP)
⚠		QCNW−0035FCN1		AT	N	B	ACコード	AC cord (Destination) [SP,I,P]
⚠		QACCS7420QCZZ		AT	N	B	ACコード	AC cord (Destination) [SG,SF]
⚠		QACCB7122QCZZ		AX	N	B	ACコード	AC cord (Destination) (U,EAS)
⚠		QACCB7123QCZZ			N	B	ACコード	AC cord (Destination) (EJ,EAH)
⚠		QCNW−5086BCZZ			N	B	ACコード	AC cord (Destination) (EAI)
⚠	39	QSW−C1071CCZZ		AK		B	シーソースイッチ	Seesaw switch (120V)
⚠		QSW−C7230QCZZ		AK	N	B	シーソースイッチ	Seesaw switch (220V/240V)
⚠		QSW−C1019CCN1	DY			B	シーソースイッチ	Seesaw switch (100V)
	40	TiNSE5045BCZZ		AT	N	D		Reference card (Destination). (4B,5B,4EP,5EP,4N,5N,4S,5S,5FL,4D,5D, 4EAT,5EAT,4P,5P,4EAI,5EAI,4IL,5IL)
		TiNSG5047BCZZ		AT	N	D		Reference card (Destination) [4G,5G,4SG,5SG]
		TiNSi5049BCZZ		AT	N	D		Reference card (Destination) [4I,5I]
		TiNSZ5051BCZZ		AT	N	D		Reference card (Destination) (4NL,5NL)
		TiNSF5053BCZZ		AT	N	D		Reference card (Destination) (4EFA,5EFA,4F,5F,4SF,5SF)
		TiNSE5055BCZZ	FG	AT	N	D		Reference card (Destination) (4EAH,5EAH,4EAS,5EAS,4J,5J,4A,5A)
	41	TiNSE5046BCZZ		AT	N	D		Reference card (Destination) (5N,5FL,5EAT,5S,5B,5EP,5EAI,5U,5M,5Q,5IL,)
		TiNSG5048BCZZ		AT	N	D		Reference card (Destination) [5G,5SG]
		TiNSi5050BCZZ		AT	N	D		Reference card (Destination) [5I]
		TiNSZ5052BCZZ		AT	N	D		Reference card (Destination) [5NL]
		TiNSF5054BCZZ		AT	N	D		Reference card (Destination) (5EFA,5F,5SF)
		TiNSE5056BCZZ	FG	AT	N	D		Reference card (Destination)
	42	NFANP5001BCZZ			N	B	ファンモータ	Fan motor
	43	LANGT5048BCZZ			N	C	ファントリツケアングル L	Angle L
	44	LANGT5049BCZZ			N	C	ファントリツケアングル R	Angle R
	37	RTRNP5014BCZZ			N	B	デンゲントランス	Power transformer (110V)

23 GEHÄUSEUNTERTEIL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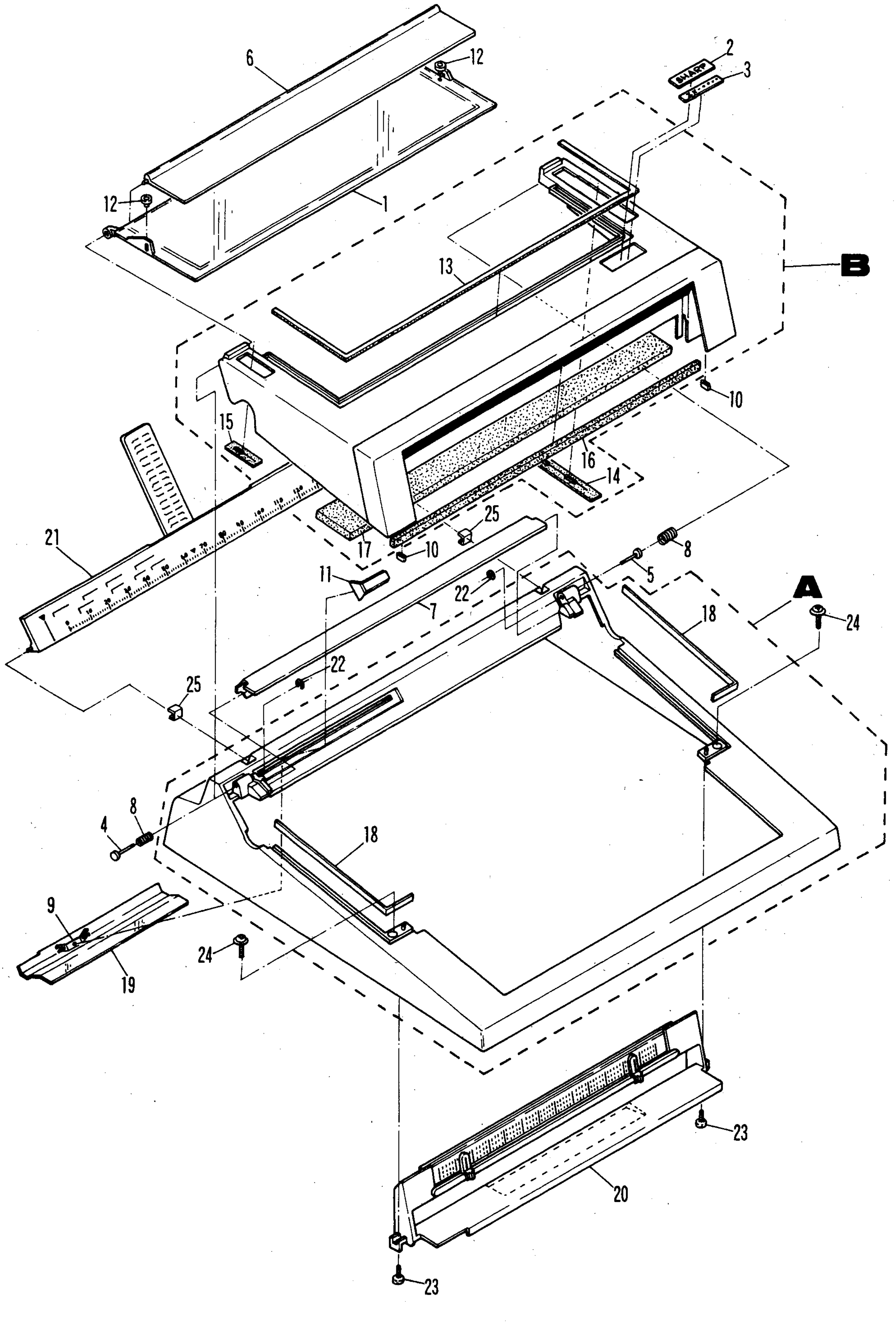
BACK VIEW

24 GEHÄUSEOBERTEIL

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
A	CCABA5010BC10	HQ	BH	N	D	ウエハウジングクミヒン	Upper housing ass'y
B	CCABC5012BC01	GN	BB	N	D	カバークミヒン	Cover ass'y
1	GCOVZ5010BCZZ	FG	AT	N	D	ボウオンカバー	Acounstic hood
2	HBDGD2035SCZZ	DL	AF		C	シャープ バッジ	Badge,SHARP
3	HBDGD5001BCZZ		AD	N	C	ZX400 バッジ	Badge,ZX－400
	HBDGD5002BCZZ		AD	N	C	ZX500 バッジ	Badge,ZX－500
	HBDGD5003BCZZ	DH		N	C	ZX400Jバッジ	Badge,ZX－400J (Japan only)
	HBDGD5004BCZZ	DH		N	C	ZX500J バッジ	Badge,ZX－500J (Japan only)
4	LPiNS5010BCZZ	DH	AD	N	C	カバーシテンジクA	Shaft for lid,left
5	LPiNS5011BCZZ	DF	AD	N	C	カバーシテンジクB	Shaft for lid,right
6	LPLTP5010BCZZ	DZ	AK	N	D	フード	Antirefrector
7	LPLTP5011BCZZ	DX	AH	N	D	セパレータ	Cover
8	MSPRC5031BCZZ	DA	AA	N	C	カバージク－SP	Spring for lid shaft
9	MSPRP5032BCZZ	DC	AB	N	C	ガイドコテイ－SP	Spring
10	PDMPZ5011BCZZ	DB	AB	N	C	ゴムダンパー	Cussion absorber
11	PGiDM5010BCZZ	DC	AB	N	D	ペーパーガイド	Paper guide
12	PGUMM5010BCZZ	DB	AB	N	C	フードコテイゴム	Cussion absorber
13	PSPF－5010BCZZ	DF	AD	N	C	ボウオンカバーシル	Acoustic hood seal
14	PSPF－5011BCZZ	DR	AG	N	C	レバーシール R	Seal,R
15	PSPF－5012BCZZ	DK	AE	N	C	レバーシール L	Seal,L
16	PSPF－5013BCZZ	DB	AB	N	C	マスク シール	Seal
17	PSPF－5014BCZZ	DK	AE	N	C	カバーシール	Seal
18	PSPF－5015BCZZ	DD	AC	N	C	ウエハウシール A	Upper cabinet seal
19	PSPF－5017BCZZ	DJ	AE	N	C	ボウゴシート	Miller film
20	CCOVZ5011BC01	FV	AX	N	D	マスククミヒン	Mask ass'y ZX－400 (J)
	CCOVZ5012BC01	FV	AX	N	D	マスククミヒン	Mask ass'y ZX－500 (J)
21	CiTAT5010BC01	EZ	AR	N	D	ペーパオサエクミヒン	Paper suppoter ass'y
22	XRESJ30－06000	DA	AA		C	Eリング	E clip
23	XCPSD30P10000	DA	AA		C	ビス	Screw
24	XBPSD40P10KS0	DA	AA		C	ビス	Screw
25	MSPRP5061BCZZ	DR	AG	N	C	PS シジ バネ	Spring

24 GEHÄUSEOBERTEIL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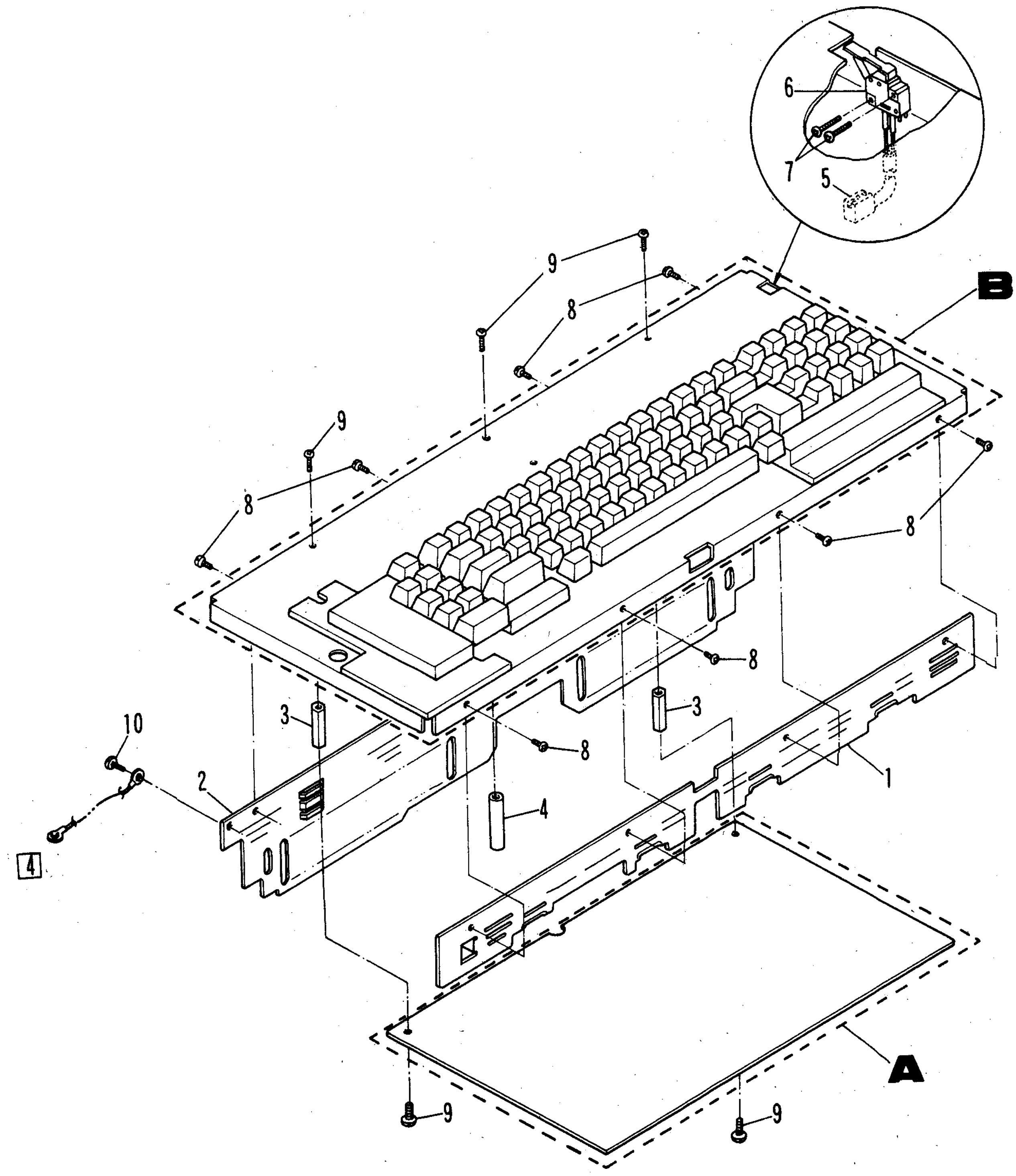
25 TASTATUR (ZX-400)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ja	Ex				
A	DUNTK5813BCZZ	VS	**	N	E	メインキバンユニット (ROM2ナシ)	Main PWB unit w/o ROM2
B						KEY−U	Complete key unit (Japan only)
	00PZX400KBD47		BZ	N	E	47キー キーボードユニット (キートップナシ)	47−Key keyboard unit w/o key tops
	00PZX400KBD48		BZ	N	E	48キー キーボードユニット (キートップナシ)	48−Key keyboard unit w/o key tops
1	LANGF5042BCZZ	EK	AN	N	C	KEYシジマエ	Keyboard support front
2	LANGF5043BCZZ	EQ	AP	N	C	KEYシジウシロ	Keyboard support rear
3	NSFTZ5044BCZZ	DF	AD	N	C	PWBトリツケジクB	Spacer
4	NSFTZ5045BCZZ	DF	AD	N	C	PWBシジジク	Spacer
5	QCNW−5085BCZZ	DG	AD	N	C	2P CNセンツキ	Connector with wire
6	QSW−M5010BCZZ	DP	AF	N	C	マイクロスイッチ	Micro switch
7	XBTSD20P08000	DA	AA		C	ビス	Screw
8	XBPSD30P06K00	DA	AA		C	ビス	Screw
9	XBPSD40P08KS0	DA	AA		C	ビス	Screw
10	XCPSD30P08000	DA	AA		C	ビス	Screw

25 TASTAUR (ZX-400)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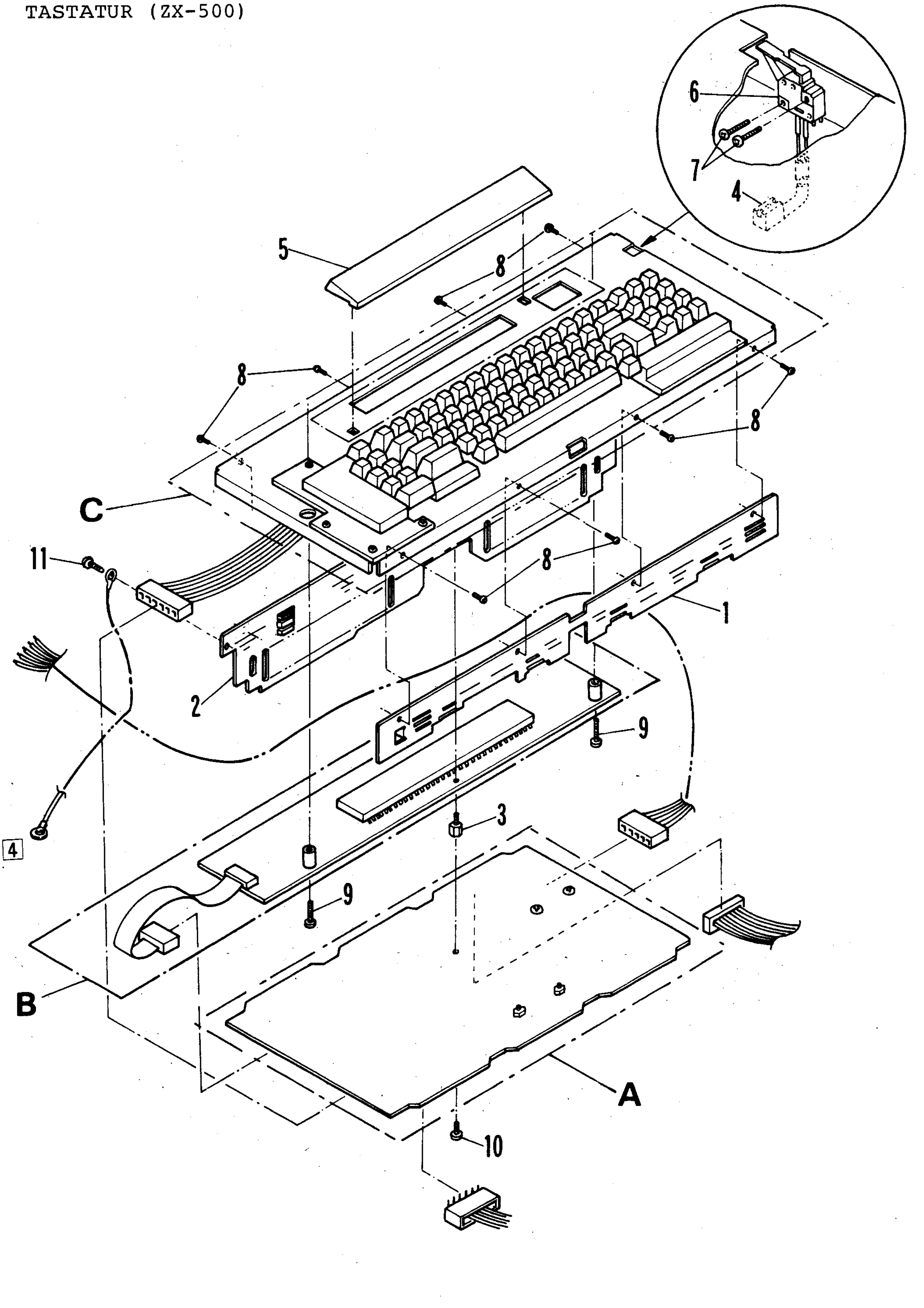
26 TASTATUR (ZX-500)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ja	Ex			
A	DUNTK5814BCZZ	**	**	N	E	メインキバンユニット (ROM4ナシ) Main PWB unit w/o ROM4
B	DUNTK5812BCZZ	UF	CC	N	E	ヒョウジキバンユニット Display PWB unit
C						キーユニット Complete key unit (Japan only)
	00PZX500KBD47		BZ	N	E	47キー キーボードユニット (キートップナシ) 47−Key keyboard unit w/o key tops
	00PZX500KBD48		BZ	N	E	48キー キーボードユニット (キートップナシ) 48−Key keyboard unit w/o key tops
1	LANGF5042BCZZ	EK	AN	N	C	KEYシジマエ Keyboard support front
2	LANGF5043BCZZ	EQ	AP	N	C	KEYシジウシロ Keyboard support rear
3	NSFTZ5040BCZZ	DE	AC	N	C	PWBトリツケジク Spacer
4	QCNW−5085BCZZ	DG	AD	N	C	2P CNセンツキ Connector with wire
5	PFiLW5010BCZZ	DV	AH	N	C	フィルター Display filter
6	QSW−M5010BCZZ	DP	AF	N	C	マイクロスイッチ Microswitch
7	XBTSD20P08000	DA	AA		D	ビス Screw
8	XBPSD30P06K00	DA	AA		C	ビス Screw
9	XBPSD30P23000	DA	AA		C	ビス Screw
10	XBPSD40P08KS0	DA	AA		C	ビス Screw
11	XCPSD30P08000	DA	AA		C	ビス Screw

26 TASTATUR (ZX-500)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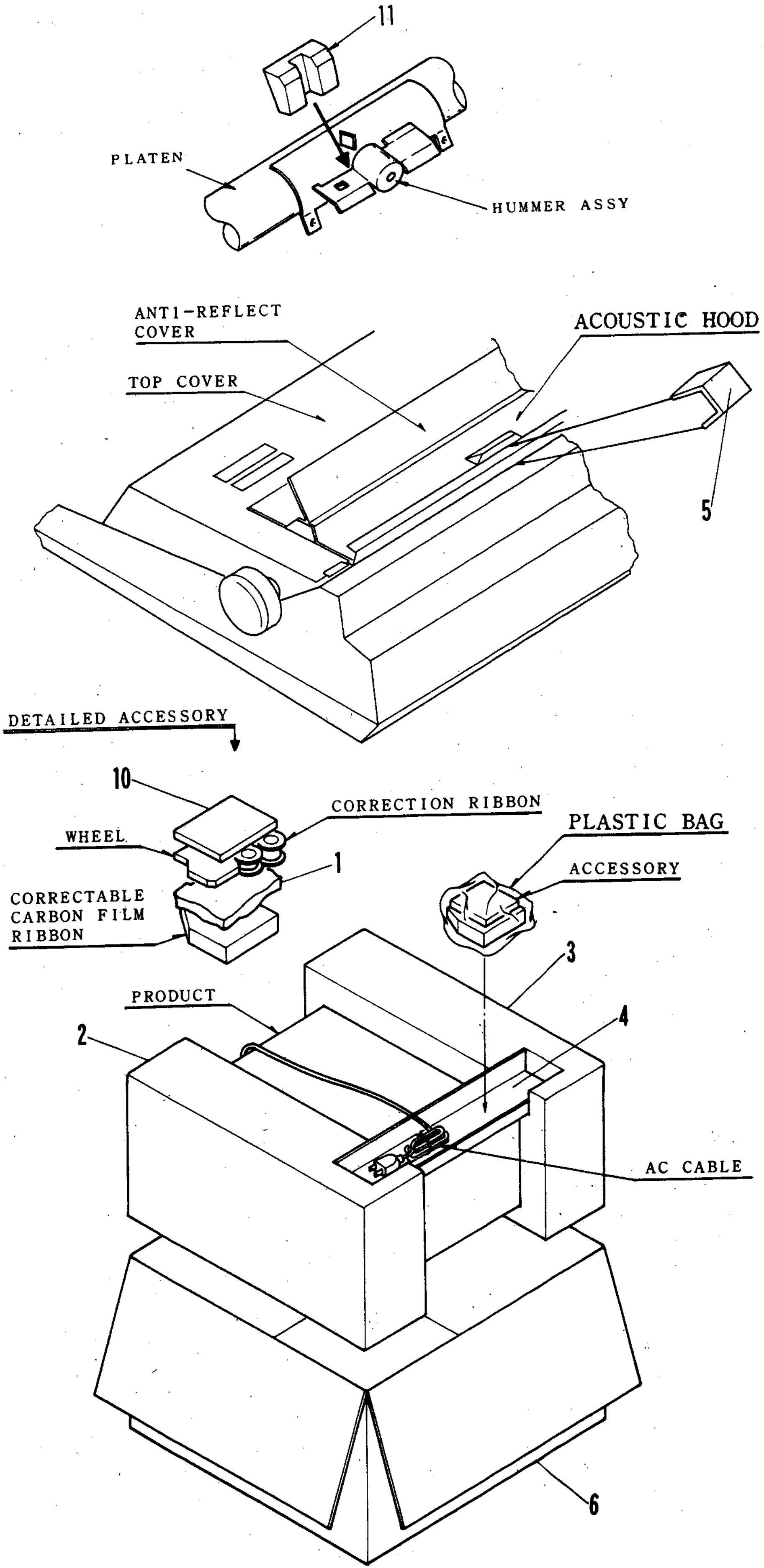
27 VERPACKUNGSMATERIAL UND ZUBEHÖR (ZX-400)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION		
		Ja	Ex					
1	PCOVM5016BCZZ	ES	AQ	N	D	ダストカバー	Dust cover	
2	SPAKA5042BCZZ	DZ	AK	N	D	アドーL	Packing aid,left	
3	SPAKA5043BCZZ	DZ	AK	N	D	アドーR	Packing aid,right	
4	SPAKA5045BCZZ	DG	AD	N	D	アドーA	Packing aid	
5	SPAKA5131BCZZ	DB	AB	N	D	セパレータスペーサ	Spacer	
6	SPAKC5040BCZZ		AW	N	D	パッキングケース	Packing case	
	SPAKC5044BCZZ	FS		N	D	パッキングケース	Packing case (Japan only)	
7	SSAKH1020CCZZ	DA	AA		D	ポリサック	Vinyl sack	
8	SSAKA2320QCZZ	DA	AA		D	ポリサック	Vinyl sack	
9	SSAKH3012KCZZ	DH	AD		D	ポリサック	Vinyl sack	
10	TiNSA5031BCZZ		AS	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔4A〕
	TiNSE5020BCZZ		AN	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔4S,4N,4EAI,4EAT,4EAS,4U,4EAH,4IL〕
	TiNSF5037BCZZ		AW	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔4M〕
	TiNSG5021BCZZ		AT	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔4G〕
	TiNSF5033BCZZ		AT	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔4F,4EFA〕
	TiNSZ5043BCZZ		AT	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔4Q,4EJ〕
	TiNSi5039BCZZ		AT	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔4I〕
	TiNSH5041BCZZ		AT	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔4NL〕
	TiNSS5035BCZZ		AT	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔4SG,4SF〕
	TiNSJ5029BCZZ			N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔4J〕
11	SPAKA5132BCZZ			N	D	パッキング	Packing	
12	SPAKA5133BCZZ			N	D	パッキング カバーホゴ	Packing,cover	
13	SPAKA5134BCZZ			N	D	パッキング ソコホゴ	Packing,bottom	

DESTINATION TABLE

CODE		MODEL	DESTINATION	CODE		MODEL	DESTINATION
A	4A	ZX-400A	U.S.A.	I	4I	ZX-400I	Italy
	5A	ZX-500A			5I	ZX-500I	
M	4M	ZX-400M	Canada	N	4N	ZX-400N	Norway
	5M	ZX-500M			5N	ZX-500N	
G	4G	ZX-400G	West Germany	NL	4NL	ZX-400NL	Holland
	5G	ZX-500G			5NL	ZX-500NL	
F	4F	ZX-400F	France	P	4P	ZX-400P	Portugal
	5F	ZX-500F			5P	ZX-500P	
SP	4SP	ZX-400SP	Spain	S	4S	ZX-400S	Finland
	5SP	ZX-500SP		FL	5FL	ZX-500FL	
U	4U	ZX-400U	UK	D	4D	ZX-400D	Denmark
	5U	ZX-500U			5D	ZX-500D	
Q	4Q	ZX-400Q	Australia, New Zeland	SG	4SG	ZX-400SG	Switzerland (German)
	5Q	AX-500Q			5SG	ZX-500SG	
EJ	4EJ	ZX-400EJ	South Africa	S	4S	ZX-400S	Sweden
	5EJ	ZX-500EJ			5S	ZX-500S	
EAH	4EAH	ZX-400EA	Hong Kong	B	4B	ZX-400B	Belgium
	5EAH	ZX-500EA			5B	ZX-500B	
EAS	4EAS	ZX-400EA	Singapore	IL	4IL	ZX-400IL	Iceland
	5EAS	ZX-500EA			5IL	ZX-500IL	
EAT	4EAT	ZX-400ET	Taiwan	SF	4SF	ZX-400SF	Switzerland (French)
	5EAT	ZX-500ET			5SF	ZX-500SF	
EAi	4EAi	ZX-400EA	Indonesia	EFA	4EFA	ZX-400EF	Algeria
	5EAi	ZX-500EA			5EFA	ZX-500EF	
J	4J	ZX-400J	Japan	ESP	4ESP	ZX-400ES	Peru
	5J	ZX-500J			5ESP	ZX-500ES	

27 VERPACKUNGSMATERIAL UND ZUBEHÖR (ZX-400)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HUMMER ASSY
ANTI-REFLECT COVER
TOP COVER
ACOUSTIC HOOD
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DETAILED ACCESSORY
10
CORRECTION RIBBON
WHEEL
1
PLASTIC BAG
ACCESSORY
CORRECTABLE CARBON FILM RIBBON
3
PRODUCT
4
2
AC CABLE
6

28 VERPACKUNGSMATERIAL UND ZUBEHÖR (ZX-500)

NO.	PARTS CODE	PRICE RANK Ja	PRICE RANK Ex	NEW MARK	PART RANK	DESCRIPTION		
1	PCOVM5016BCZZ	ES	AQ	N	D	ダストカバー	Dust cover	
2	SPAKA5042BCZZ	DZ	AK	N	D	アドーL	Packing aid left	
3	SPAKA5043BCZZ	DZ	AK	N	D	アドーR	Packing aid right	
4	SPAKA5045BCZZ	DG	AD	N	D	アドーA	Packing aid	
5	SPAKA5131BCZZ	DB	AB	N	D	セパレータスペーサ	Spacer	
6	SPAKC5041BCZZ		AW	N	D	パッキングケース	Packing case	
	SPAKC5044BCZZ	FS		N	D	パッキングケース	Packing case (Japan only)	
7	SSAKH1020CCZZ	DA	AA		D	ポリサック	Vinyl sack	
8	SSAKA2320QCZZ	DA	AA		D	ポリサック	Vinyl sack	
9	SSAKH3012KCZZ	DH	AD		D	ポリサック	Vinyl sack	
10	TiNSA5032BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5A〕
	TiNSF5038BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5M〕
	TiNSG5022BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5G〕
	TiNSF5034BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5F,5EFA〕
	TiNSE5023BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5S,5FL,5N,5EAI,5EAT,5U,5EAH,5EAS,5IL〕
	TiNSZ5044BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5Q,5EJ〕
	TiNSi5040BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5I〕
	TiNSH5042BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5NL〕
	TiNSS5036BCZZ		AX	N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5SG,5SF〕
	TiNSJ5030BCZZ	FU		N	D	トリアツカイセツメイショ	Instruction book (Destination)	〔5J〕
11	SPAKA5132BCZZ			N	D	パッキング	Packing	
12	SPAKA5133BCZZ			N	D	パッキング カバーホゴ	Packing,cover	
13	SPAKA5134BCZZ			N	D	パッキング ソコホゴ	Packing,bottom	

DESTINATION TABLE

CODE		MODEL	DESTINATION	CODE		MODEL	DESTINATION
A	4A	ZX-400A	U.S.A.	I	4I	ZX-400I	Italy
	5A	ZX-500A			5I	ZX-500I	
M	4M	ZX-400M	Canada	N	4N	ZX-400N	Norway
	5M	ZX-500M			5N	ZX-500N	
G	4G	ZX-400G	West Germany	NL	4NL	ZX-400NL	Holland
	5G	ZX-500G			5NL	ZX-500NL	
F	4F	ZX-400F	France	P	4P	ZX-400P	Portugal
	5F	ZX-500F			5P	ZX-500P	
SP	4SP	ZX-400SP	Spain	S	4S	ZX-400S	Finland
	5SP	ZX-500SP		FL	5FL	ZX-500FL	
U	4U	ZX-400U	UK	D	4D	ZX-400D	Denmark
	5U	ZX-500U			5D	ZX-500D	
Q	4Q	ZX-400Q	Australia, New Zeland	SG	4SG	ZX-400SG	Switzerland (German)
	5Q	AX-500Q			5SG	ZX-500SG	
EJ	4EJ	ZX-400EJ	South Africa	S	4S	ZX-400S	Sweden
	5EJ	ZX-500EJ			5S	ZX-500S	
EAH	4EAH	ZX-400EA	Hong Kong	B	4B	ZX-400B	Belgium
	5EAH	ZX-500EA			5B	ZX-500B	
EAS	4EAS	ZX-400EA	Singapore	IL	4IL	ZX-400IL	Iceland
	5EAS	ZX-500EA			5IL	ZX-500IL	
EAT	4EAT	ZX-400ET	Taiwan	SF	4SF	ZX-400SF	Switzerland (French)
	5EAT	ZX-500ET			5SF	ZX-500SF	
EAi	4EAi	ZX-400EA	Indonesia	EFA	4EFA	ZX-400EF	Algeria
	5EAi	ZX-500EA			5EFA	ZX-500EF	
J	4J	ZX-400J	Japan	ESP	4ESP	ZX-400ES	Peru
	5J	ZX-500J			5ESP	ZX-500ES	

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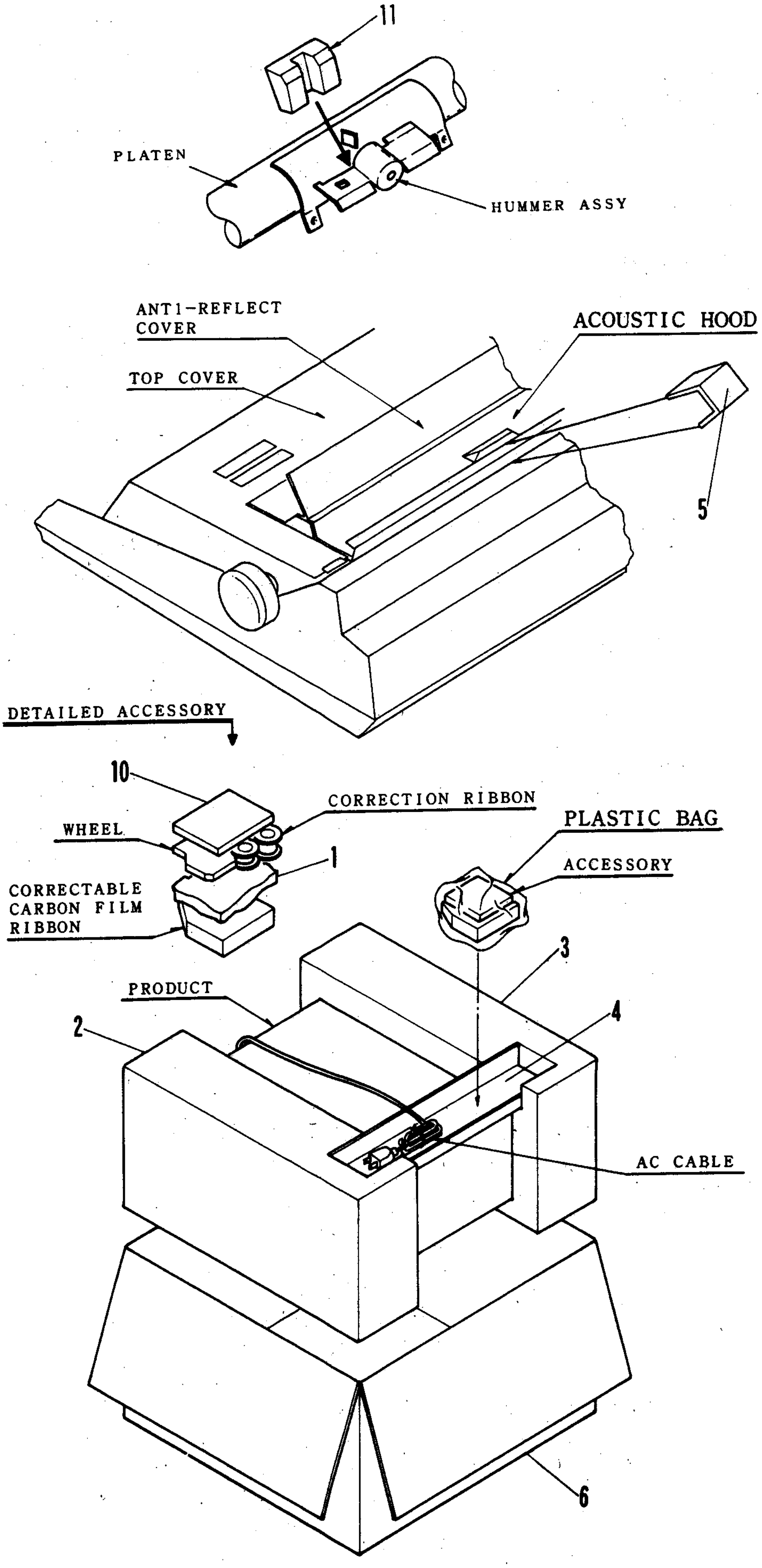
11
PLATEN
HUMMER ASSY
ANT1-REFLECT COVER
TOP COVER
ACOUSTIC HOOD
5
DETAILED ACCESSORY
10
CORRECTION RIBBON
WHEEL
1
CORRECTABLE CARBON FILM RIBBON
PLASTIC BAG
ACCESSORY
3
PRODUCT
2
4
AC CABLE
6

■索　引 (Index)

PARTS CODE	NO.	PRICE R.		NEW	P/R	
		Ja.	Ex.			
【C】						
CCABA5010BC10	24-A	HQ	BH	N	D	
CCABC5012BC01	24-B	GN	BB	N	D	
CCASZ5010BC01	21-A	HV	BK	N	E	
CCOVZ5011BC01	24- 20	FV	AX	N	D	
CCOVZ5012BC01	24- 20	FV	AX	N	D	
CDAIH5010BC01	20-A	UA	CA	N	E	
CITAT5010BC01	24- 21	EZ	AR	N	D	
CMOTN5011BC01	20-B	GU	BD	N	E	
CMOTN5013BC01	21- 42	FV	AX	N	B	
CMOTZ5010BC01	21- 57	MJ	BQ	N	E	
CMOTZ5012BC01	20- 56	MK	BQ	N	E	
CPLYB5021BC01	20- 28	EM	AP	N	C	
CPLYM5020BC01	20- 61	ES	AQ	N	C	
CPWBF5017BC01	23-A		BC	N	C	
CPWBF5017BC02	23-A	GQ		N	C	
CPWBF5018BC01	23-A		BD	N	C	
CPWBF5019BC01	23-A		BD	N	C	
CPWBF5020BC01	23-B	TD	BW	N	E	
CPWBF5020BC02	23-B		BW	N	E	
【D】						
DUNTK5812BCZZ	26-B	UF	CC	N	E	
DUNTK5813BCZZ	25-A	VS	**	N	E	
DUNTK5814BCZZ	26-A	**	**	N	E	
DUNTM5055BCZZ	21- 58	HP	BH	N	E	
【G】						
GCABB5011BCZZ	23- 1	GY	BE	N	D	
GCASP5011BCZZ	23- 2	DY	AK	N	D	
GCOVZ5010BCZZ	24- 1	FG	AT	N	D	
GFTAU5011BCZZ	23- 3	FM	AV	N	D	
GFTAU5015BCZZ	23- 3		AY	N	C	
【H】						
HBDGD2035SCZZ	24- 2	DL	AF		C	
HBDGD5001BCZZ	24- 3		AD	N	C	
HBDGD5002BCZZ	24- 3		AD	N	C	
HBDGD5003BCZZ	24- 3	DH		N	C	
HBDGD5004BCZZ	24- 3	DH		N	C	
HPNLC5020BCZZ	23- 4	DB	AB	N	D	
HSSN—5010BCZZ	21- 63	DG	AD	N	C	
【J】						
JKNBZ5010BCZZ	20- 58	DC	AB	N	C	
JKNBZ5011BCZZ	20- 62	DK	AE	N	C	
JKNBZ5012BCZZ	21- 59	DB	AB	N	C	
【L】						
LANGF2437SCZZ	23- 24	DL	AE		C	
LANGF5042BCZZ	25- 1	EK	AN	N	C	
〃	26- 1	EK	AN	N	C	
LANGF5043BCZZ	25- 2	EQ	AP	N	C	
〃	26- 2	EQ	AP	N	C	
LANGQ5040BCZZ	23- 5	EB	AL	N	C	
LANGT5041BCZZ	21- 64	DP	AF	N	C	
LANGT5048BCZZ	23- 43			N	C	
LANGT5049BCZZ	23- 44			N	C	
LBNDJ0020FCZZ	20- 1	DB	AA		C	
〃	23- 6	DB	AA		C	
LBSHZ2003HCZZ	23- 7	DB	AB		C	
LBSHZ5010BCZZ	21- 17	DC	AB	N	C	
LDAIH5010BCZZ	21- 1	ET	AQ	N	C	
LDAIH5011BCZZ	21- 44	EZ	AR	N	C	
LFIX—5010BCZZ	21- 45	DL	AE	N	C	
LFRM—5010BCZZ	20- 43	DY	AK	N	C	
LFRM—5012BCZZ	20- 57	DV	AH	N	C	
LHLDK5016BCZZ	23- 8	DD	AC	N	C	
LHLDR5010BCZZ	20- 2	DJ	AE	N	C	
LHLDR5011BCZZ	20- 3	DH	AD	N	C	
LHLDW2020SCZZ	23- 9	DB	AB		C	
LHLDW2047SCZZ	20- 4	DB	AA		C	
〃	23- 10	DB	AA		C	
LHLDW5019BCZZ	20- 5			N	C	
LHLDZ5012BCZZ	21- 46	DD	AC	N	C	
LHLDZ5015BCZZ	20- 64	DN	AF	N	C	
LHLDZ5017BCZZ	21- 2	DN	AF	N	C	
LHLDZ5018BCZZ	21- 3	DE	AC	N	C	
LPINS5010BCZZ	24- 4	DH	AD	N	C	
LPINS5011BCZZ	24- 5	DF	AD	N	C	
LPLTM5015BCZZ	21- 60	DZ	AK	N	C	
LPLTM5018BCZZ	21- 47	DF	AD	N	C	
LPLTM5019BCZZ	20- 6	DE	AC	N	C	

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		Ja.	Ex.			
LPLTM5020BCZZ	20- 7	DJ	AE	N	C	
LPLTM5021BCZZ	20- 44	DH	AE	N	C	
LPLTP5010BCZZ	24- 6	DZ	AK	N	D	
LPLTP5011BCZZ	24- 7	DX	AH	N	D	
LRALM5010BCZZ	20- 8	FL	AV	N	C	
LRALM5011BCZZ	20- 9	FK	AU	N	C	
LSTPF5012BCZZ	21- 18	DC	AC	N	C	
LSTPF5013BCZZ	21- 19	DF	AD	N	C	
LSTPF5015BCZZ	21- 20	DF	AD	N	C	
LSTYM5010BCZZ	21- 4	DF	AD	N	C	
LSTYM5012BCZZ	21- 5	DJ	AE	N	C	
LX—BZ5010BCZZ	20- 11	DE	AC	N	C	
LX—BZ5011BCZZ	20- 12	DG	AD	N	C	
LX—BZ5012BCZZ	21- 6	DF	AD	N	C	
LX—BZ5016BCZZ	22-B09	DA	AA	N	C	
LX—BZ5017BCZZ	22-B04	DA	AA	N	C	
LX—BZ5018BCZZ	22-B02	DA	AA	N	C	
LX—BZ5019BCZZ	22-B01	DA	AA	N	C	
LX—BZ5020BCZZ	22-B08	DA	AA	N	C	
LX—BZ5022BCZZ	22-B03	DA	AA	N	C	
LX—BZ5024BCZZ	22-B05	DA	AA	N	C	
LX—BZ5025BCZZ	22-B07	DA	AA	N	C	
LX—BZ5026BCZZ	22-B06	DA	AA	N	C	
LX—WZ5001BCZZ	22-H03	DA	AA	N	C	
LX—WZ5004BCZZ	22-H04	DA	AA	N	C	
LX—WZ5017BCZZ	22-H01	DA	AA	N	C	
LX—WZ5018BCZZ	22-H02	DA	AA	N	C	
【M】						
MCAMP5020BCZZ	21- 21	DH	AE	N	C	
MCAMP5021BCZZ	21- 22	DD	AC	N	C	
MLEVF5020BCZZ	21- 48	DF	AD	N	C	
MLEVF5021BCZZ	21- 49	DR	AF	N	C	
MLEVF5022BCZZ	21- 50	DF	AD	N	C	
MLEVF5023BCZZ	21- 23	DD	AC	N	C	
MLEVF5026BCZZ	21- 7	DF	AD	N	C	
MLEVF5027BCZZ	21- 24	DF	AD	N	C	
MLEVF5028BCZZ	21- 25	DF	AD	N	C	
MLEVP5010BCZZ	20- 13	DH	AD	N	C	
MLEVP5011BCZZ	20- 14	DG	AD	N	C	
MLEVP5012BCZZ	20- 45	DE	AC	N	C	
MLEVP5013BCZZ	20- 46	DF	AD	N	C	
MLEVP5014BCZZ	20- 15	DC	AB	N	C	
MLEVP5015BCZZ	20- 16	DE	AC	N	C	
MLEVP5016BCZZ	20- 17	DD	AC	N	C	
MLEVP5018BCZZ	20- 18	DE	AC	N	C	
MLNKM5010BCZZ	20- 19	DD	AC	N	C	
MSPRC5031BCZZ	24- 8	DA	AA	N	C	
MSPRC5034BCZZ	20- 20	DB	AB	N	C	
MSPRC5044BCZZ	21- 26	DA	AA	N	C	
MSPRD5038BCZZ	20- 21	DB	AB	N	C	
MSPRD5039BCZZ	20- 22	DB	AB	N	C	
MSPRD5056BCZZ	21- 27	DA	AA	N	C	
MSPRK5060BCZZ	20- 42	DC	AB	N	C	
MSPRK5062BCZZ	21- 73	DC	AB	N	C	
MSPRP5032BCZZ	24- 9	DC	AB	N	C	
MSPRP5037BCZZ	20- 23	DA	AA	N	C	
MSPRP5050BCZZ	21- 8	DN	AF	N	C	
MSPRP5053BCZZ	21- 28	DB	AB	N	C	
MSPRP5055BCZZ	21- 29	DE	AC	N	C	
MSPRP5061BCZZ	24- 25	DR	AG	N	C	
MSPRT5035BCZZ	20- 24	DB	AB	N	C	
MSPRT5040BCZZ	21- 51	DA	AA	N	C	
MSPRT5041BCZZ	21- 52	DB	AB	N	C	
MSPRT5042BCZZ	21- 53	DB	AB	N	C	
MSPRT5043BCZZ	21- 54	DB	AB	N	C	
MSPRT5045BCZZ	21- 30	DB	AB	N	C	
MSPRT5048BCZZ	20- 47	DB	AB	N	C	
MSPRT5049BCZZ	20- 48	DB	AB	N	C	
MSPRT5051BCZZ	21- 9	DB	AB	N	C	
MSPRT5054BCZZ	21- 10	DB	AB	N	C	
【N】						
NBRGF5020BCZZ	21- 11	DW	AH	N	C	
NBRGF5026BCZZ	20- 25	DG	AD	N	C	
NBRGZ5021BCZZ	21- 12	DV	AH	N	C	
NFANP5001BCZZ	23- 42			N	B	
NGERH5055BCZZ	20- 49	DE	AC	N	C	
NGERZ5050BCZZ	20- 26	DE	AC	N	C	
NGERZ5051BCZZ	20- 27	DF	AD	N	C	
NGERZ5053BCZZ	21- 31	DC	AB	N	C	
NROLM5025BCZZ	20- 50	DD	AC	N	C	

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		Ja.	Ex.			
NRŌLP5021BCZZ	20- 29	DN	AF	N	C	
NRŌLP5022BCZZ	21- 55	DB	AB	N	C	
NRŌLR5020BCZZ	20- 30	GZ	BE	N	C	
NRŌLR5023BCZZ	20- 31	DZ	AK	N	C	
NRŌLR5024BCZZ	20- 32	DX	AK	N	C	
NSFTA5041BCZZ	20- 33	DT	AG	N	C	
NSFTA5042BCZZ	20- 59	DP	AF	N	C	
NSFTA5043BCZZ	20- 60	DC	AB	N	C	
NSFTP5040BCZZ	21- 32	DD	AC	N	C	
NSFTZ5040BCZZ	26- 3	DE	AC	N	C	
NSFTZ5044BCZZ	25- 3	DF	AD	N	C	
NSFTZ5045BCZZ	25- 4	DF	AD	N	C	
【P】						
PAJS—5010BCZZ	20- 34	DN	AF	N	C	
PBARM5010BCZZ	20- 35	EX	AR	N	C	
PBARM5011BCZZ	20- 36	EW	AR	N	C	
PBŌX—5010BCZZ	23- 11	DP	AF	N	C	
PCAPZ5011BCZZ	20- 63	DD	AC	N	C	
PCAPZ5012BCZZ	21- 56	DD	AC	N	C	
PCASZ5010BCZZ	21- 33	EA	AL	N	C	
PCLI—5010BCZZ	20- 37	DD	AC	N	C	
PCŌVM5016BCZZ	27- 1	ES	AQ	N	D	
〃	28- 1	ES	AQ	N	D	
PCŌVP5010BCZZ	21- 61	DD	AC	N	C	
PCŌVP5013BCZZ	23- 12	DH	AD	N	C	
PCŌVP5014BCZZ	23- 13	DC	AB	N	C	
PCŌVP5015BCZZ	23- 14	DW	AH	N	C	
PCŌVP5017BCZZ	23- 22	DA	AA	N	C	
PCŌVP5019BCZZ	21- 43	DD	AC	N	C	
PDMPZ5010BCZZ	20- 38	DB	AB	N	C	
PDMPZ5011BCZZ	24- 10	DB	AB	N	C	
PFILW5010BCZZ	26- 5	DV	AH	N	C	
PGIDM5010BCZZ	24- 11	DC	AB	N	D	
PGIDM5011BCZZ	21- 13	DE	AC	N	C	
PGIDM5012BCZZ	21- 14	DE	AC	N	C	
PGIDM5014BCZZ	21- 15	DU	AG	N	C	
PGUMM5010BCZZ	24- 12	DB	AB	N	C	
PGUMM5011BCZZ	20- 39	DC	AB	N	C	
PGUMM5012BCZZ	23- 15	DB	AB	N	C	
PGUMS2042SCZZ	23- 25	DR	AG		C	
PMAGE5010BCZZ	20- 51	DF	AD	N	C	
PRDAF5013BCZZ	23- 26	HN	BG	N	C	
PRDAF5014BCZZ	23- 27	FP	AV	N	C	
PRNGP5010BCZZ	20- 40	DE	AC	N	C	
PRNGP5012BCZZ	20- 10	DD	AC	N	C	
PSPAP5011BCZZ	21- 34	DA	AA	N	C	
PSPAP5012BCZZ	21- 35	DA	AA	N	C	
PSPAP5014BCZZ	21- 36	DB	AB	N	C	
PSPAP5018BCZZ	20- 69			N	C	
PSPAP5019BCZZ	20- 70			N	C	
PSPAP5020BCZZ	20- 71			N	C	
PSPAZ5015BCZZ	23- 16	DA	AA	N	C	
PSPAZ5016BCZZ	21- 16	DA	AA	N	C	
PSPF—5010BCZZ	24- 13	DF	AD	N	C	
PSPF—5011BCZZ	24- 14	DR	AG	N	C	
PSPF—5012BCZZ	24- 15	DK	AE	N	C	
PSPF—5013BCZZ	24- 16	DB	AB	N	C	
PSPF—5014BCZZ	24- 17	DK	AE	N	C	
PSPF—5015BCZZ	24- 18	DD	AC	N	C	
PSPF—5017BCZZ	24- 19	DJ	AE	N	C	
PTME—5010BCZZ	21- 37	DY	AK	N	C	
PTME—5011BCZZ	21- 38	DF	AD	N	C	
PTME—5013BCZZ	21- 39	DF	AD	N	C	
PWIR—5010BCZZ	20- 41	EA	AK	N	C	
PZETM2002SCZZ	23- 28	DL	AA		C	
【Q】						
QACCB7122QCZZ	23- 38		AX	N	B	
QACCB7123QCZZ	23- 38			N	B	
QACCD7413QCN1	23- 38		AQ	N	B	
QACCJ3419QCN1	23- 38	EC		N	B	
QACCL7420QCZZ	23- 38		AV	N	B	
QACCS7420QCZZ	23- 38		AT	N	B	
QACCV6420QCN1	23- 38		AV	N	B	
QBRSZ5010BCZZ	21- 40	EY	AR	N	C	
QCNCM5030BCZZ	21- 67	DB	AB	N	C	
QCNCM5031BCZZ	21- 68	DB	AB	N	C	
QCNCM5032BCZZ	21- 69	DB	AB	N	C	
QCNCM5033BCZZ	21- 70	DX	AH	N	C	
QCNCM5043BCZZ	21- 71	DS	AG	N	C	
QCNTF5010BCZZ	20- 52	DL	AE	N	C	

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		Ja.	Ex.			
QCNW—0035FCN1	23- 38		AT	N	B	
QCNW—5071BCZZ	21- 65	FV	AX	N	C	
QCNW—5073BCZZ	21- 66	DT	AG	N	C	
QCNW—5074BCZZ	23- 23	EJ	AN	N	C	
QCNW—5076BCZZ	20- 68	EP	AP	N	C	
QCNW—5077BCZZ	20- 67	DN	AF	N	C	
QCNW—5078BCZZ	20- 53	DN	AF	N	C	
QCNW—5080BCZZ	23- 17	DH	AE	N	C	
QCNW—5081BCZZ	23- 18	DG	AD	N	C	
QCNW—5083BCZZ	23- 19	DK	AE	N	C	
QCNW—5084BCZZ	23- 20	DM	AE	N	C	
QCNW—5085BCZZ	25- 5	DG	AD	N	C	
〃	26- 4	DG	AD	N	C	
QCNW—5086BCZZ	23- 38			N	B	
QPWBE5011BCZZ	20- 54	DB	AB	N	C	
QPWBE5015BCZZ	21- 41	ED	AM	N	C	
QPWBN5013BCZZ	21- 72	EX	AR	N	C	
QSW—C1019CCN1	23- 39	DY			B	
QSW—C1071CCZZ	23- 39		AK		B	
QSW—C7230QCZZ	23- 39		AK	N	B	
QSW—M5010BCZZ	25- 6	DP	AF	N	C	
〃	26- 6	DP	AF	N	C	
QSW—M5013BCZZ	20- 66	EC	AL	N	B	
【R】						
RCŌRF2001SCZZ	23- 21	EC	AN		C	
RMŌTN5011BCZZ	20- 55	FS	AW	N	B	
RTRNP5011BCZZ	23- 37		BH	N	B	
RTRNP5012BCZZ	23- 37		BL	N	B	
RTRNP5013BCZZ	23- 37	HT		N	B	
【S】						
SPAKA5042BCZZ	27- 2	DZ	AK	N	D	
〃	28- 2	DZ	AK	N	D	
SPAKA5043BCZZ	27- 3	DZ	AK	N	D	
〃	28- 3	DZ	AK	N	D	
SPAKA5045BCZZ	27- 4	DG	AD	N	D	
〃	28- 4	DG	AD	N	D	
SPAKA5131BCZZ	27- 5	DB	AB	N	D	
〃	28- 5	DB	AB	N	D	
SPAKA5132BCZZ	27- 11			N	D	
〃	28- 11			N	D	
SPAKA5133BCZZ	27- 12			N	D	
〃	28- 12			N	D	
SPAKA5134BCZZ	27- 13			N	D	
〃	28- 13			N	D	
SPAKC5040BCZZ	27- 6		AW	N	D	
SPAKC5041BCZZ	28- 6		AW	N	D	
SPAKC5044BCZZ	27- 6	FS		N	D	
〃	28- 6	FS		N	D	
SSAKA2320QCZZ	27- 8	DA	AA		D	
〃	28- 8	DA	AA		D	
SSAKH1020CCZZ	27- 7	DA	AA		D	
〃	28- 7	DA	AA		D	
SSAKH3012KCZZ	27- 9	DH	AD		D	
〃	28- 9	DH	AD		D	
【T】						
TINSA5031BCZZ	27- 10		AS	N	D	
TINSA5032BCZZ	28- 10		AX	N	D	
TINSE5020BCZZ	27- 10		AN	N	D	
TINSE5023BCZZ	28- 10		AX	N	D	
TINSE5045BCZZ	23- 40		AT	N	D	
〃	23- 40		AT	N	D	
TINSE5046BCZZ	23- 41		AT	N	D	
TINSE5055BCZZ	23- 40	FG	AT	N	D	
TINSE5056BCZZ	23- 41	FG	AT	N	D	
TINSF5033BCZZ	27- 10		AT	N	D	
TINSF5034BCZZ	28- 10		AX	N	D	
TINSF5037BCZZ	27- 10		AW	N	D	
TINSF5038BCZZ	28- 10		AX	N	D	
TINSF5053BCZZ	23- 40		AT	N	D	
TINSF5054BCZZ	23- 41		AT	N	D	
TINSG5021BCZZ	27- 10		AT	N	D	
TINSG5022BCZZ	28- 10		AX	N	D	
TINSG5047BCZZ	23- 40		AT	N	D	
TINSG5048BCZZ	23- 41		AT	N	D	
TINSH5041BCZZ	27- 10		AT	N	D	
TINSH5042BCZZ	28- 10		AX	N	D	
TINSI5039BCZZ	27- 10		AT	N	D	
TINSI5040BCZZ	28- 10		AX	N	D	
TINSI5049BCZZ	23- 40		AT	N	D	
TINSI5050BCZZ	23- 41		AT	N	D	

PARTS CODE	NO.	PRICE R.		NEW	P/R	
		Ja.	Ex.			
TINSJ5029BCZZ	27- 10			N	D	
TINSJ5030BCZZ	28- 10	FU		N	D	
TINSS5035BCZZ	27- 10		AT	N	D	
TINSS5036BCZZ	28- 10		AX	N	D	
TINSZ5043BCZZ	27- 10		AT	N	D	
TINSZ5044BCZZ	28- 10		AX	N	D	
TINSZ5051BCZZ	23- 40		AT	N	D	
TINSZ5052BCZZ	23- 41		AT	N	D	
【X】						
XBPBZ40P08K00	23- 36	DA	AA		C	
XBPSD30P06K00	23- 29	DA	AA		C	
〃	25- 8	DA	AA		C	
〃	26- 8	DA	AA		C	
XBPSD30P08KS0	23- 34	DA	AA		C	
XBPSD30P08K00	23- 30	DA	AA		C	
XBPSD30P16K00	23- 31	DA	AA		C	
XBPSD30P23000	26- 9	DA	AA		C	
XBPSD40P08KS0	22-C01	DA	AA		C	
〃	25- 9	DA	AA		C	
〃	26- 10	DA	AA		C	
XBPSD40P10KS0	23- 32	DA	AA		C	
〃	24- 24	DA	AA		C	
XBPSD40P14KS0	23- 33	DA	AA		C	
XBTSD20P08000	25- 7	DA	AA		C	
〃	26- 7	DA	AA		D	
XCPSC26P06000	22-G03	DA	AA		C	
XCPSC26P08000	22-G01				C	
XCPSC30P06000	22-G04				C	
XCPSC30P08000	22-G02	DA	AA		C	
XCPSD30P08000	25- 10	DA	AA		C	
〃	26- 11	DA	AA		C	
XCPSD30P10000	24- 23	DA	AA		C	
XNESD50—40000	22-D01	DA	AA		C	
XRESJ15—04000	22-A01	DA	AA		C	
XRESJ20—04000	22-A02	DB	AA		C	
XRESJ30—06000	22-A03	DA	AA		C	
〃	24- 22	DA	AA		C	
XRESJ40—06000	22-A04	DB	AA		C	
XRESJ50—06000	22-A05	DA	AA		C	
XVPSD30P06000	23- 35	DA	AA		C	
XWSSD50—13000	22-E01	DA	AA		C	
XXXSP30L08000	22-F02	DB	AB		C	
XXXSP30L10000	22-F01	DB	AB		C	
XXXSP40L08000	22-F03	DB	AB		C	
【0】						
00PZX400KBD47	25-B00		BZ	N	E	
00PZX400KBD48	25-B00		BZ	N	E	
00PZX500KBD47	26-C00		BZ	N	E	
00PZX500KBD48	26-C00		BZ	N	E	

PARTS CODE	NO.	PRICE R.		NEW	P/R	
		Ja.	Ex.			